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Motivation and learning strategies: a correlational study of employee training

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MOTIVATION AND LEARNING STRATEGIES: A CORRELATIONAL STUDY OF

EMPLOYEE TRAINING

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Learning Technology

by

Cynthia Lee Parmenter

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This dissertation, written by

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under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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ABSTRACT

Increasing the effectiveness of learning within the workplace continues to be a focus for organizations. Given that people will work for many more years than the traditional 30 years of generations past, combined with the ever changing economic environment, individuals and companies must continually improve skills. Previous research has focused on the areas of motivation, self-regulated learning, and instructional design.

Within the financial services industry, many analytical skills are required. Because analysis is vital to financial success, organizations spend significant sums of money providing in-depth training. The institution involved with this study uses a vendor that provides online financial analysis training programs. The foundational program takes 50 hours to complete and is generally considered difficult.

This study sought to assess whether a correlation exists between individual motivation and the learning strategies used. Utilizing abbreviated versions of two existing instruments (the Work Preference Inventory and the Strategic Learning Questionnaire) participants were asked to report on their levels of motivation (intrinsic and extrinsic) and the types of learning strategies used. The survey began with questions that addressed (a) intrinsic challenge, (b) intrinsic enjoyment, (c) extrinsic outward (perceptions of others), and (d) extrinsic compensation motivations. The questions in the second part of the survey addressed learning strategies of (a) task understanding, (b) goal setting, (c) activating prior knowledge, (d) searching/selecting, (e) assembling, (f) translating, (g) structuring, (h) rehearsing, (i) help-seeking, (j) monitoring, (k) evaluating, and (l) regulating.

44 employees completed the survey. Motivation levels were strong overall although intrinsic motivation was slightly stronger than extrinsic. Participants reported use of the key learning strategies. While both motivation and use of learning strategies were positively reported, there were only four correlations. Positive correlations were found between intrinsic challenge motivation and both goal setting and activating prior knowledge. Positive correlations were also found between extrinsic outward motivation and goal setting and regulating.

As this study showed, motivation plays a role in certain of the strategies used when acquiring skills directly related to job success. Further research is needed to help organizations identify the motivational and learning strategy levers and to use the knowledge gained to design training and learning support environments.

Chapter I: Introduction

In the last decade of the 20th century, Naisbitt (1982) identified 20 trends that the United States and the world would face in the coming years. Number one on his list was the major transformation of leaving the industrial society and becoming an information society. Pointing to the concept of the labor theory of value, created by Marx at the turn of the 20th century, Naisbitt argued that the old theory "...must be replaced with a new knowledge theory of value" (p. 17). He went on to write, "In an information society, value is increased by knowledge..." (p. 17). Exploring the transformation further, Naisbitt predicted that, "We are moving from the specialist who is soon obsolete to the generalist who can adapt" (p. 37). And continual learning will be critical in the process of moving us from obsolete specialists to adaptive generalists.

Today the United States faces change as momentous as first harnessing fire, forming communities in support of an agrarian society, and becoming an industrial society. This *sea change* (a term from Shakespeare's *The Tempest* that is commonly used today in corporate America to indicate a momentous transformation) we have been experiencing since the late 1900s, is that we are becoming an information society focused on knowledge and the continual need to learn. Much of the work we used to do in the areas of manufacturing is now being outsourced to other countries. This change is being driven largely by three key factors: U. S. demographics, globalization, and technology.

Demographics

In contrast to the agrarian and industrial eras previously discussed, at the dawn of the 21st century, life is hugely different in the United States. According to the Harvard Health Publications (2006), average life spans in the United States now exceed 77.6

years. We are better educated and the ethnic and cultural diversity in the country is

significant. There are more adults than ever before and, based upon current estimates, the

age of the population will continue to grow for at least two decades (based on baby

boomer mortality estimates).

Educational achievement has increased almost as dramatically as life expectancy.

According to the U.S. Census (U. S. Government, 2010), 86.7 % of people ages 25 – 34

have completed high school. That figure is 18 % higher compared to the people who are

65 and older. To date, the strongest predictor of participation in adult education is

previous education (DeJoy, 1997), so it is very likely that the desire and need for further

education will increase as the population continues to age. Additional education will also

be necessary because we are living longer and because many people will have limited

savings, meaning they will need to work longer than previous generations worked (or

lived).

While the overall rates for people completing high school continue to rise, there is

still a large number who fail to graduate (National Center for Education Statistics, 2011).

Because a high-school diploma is now generally considered to be the minimal education

standard, significant concerns exist for those who drop out including the substantial

reduction in their life-long earnings potential. As the two other driving changes of

globalization and technology continue to exert pressure on workers to constantly increase

their skills, Americans without a high school diploma will have fewer opportunities and

lower lifetime earning potential. Even when employed, this group will offer additional

challenges for employers to help them achieve the level of skills their jobs require.

The over-50 population controls 80% of the money invested in financial institutions and 67% of the money in the stock market. While the eventual *tomb bomb* will eliminate the baby *boom* population, in the meantime, this age group (generally considered people born between 1944 and 1964) essentially controls consumerism, health care, real estate, retirement and politics. And, the baby boomers do not typically see themselves as "retiring" preferring, instead, to be doing new and different things (Lakin, Mullane, & Robinson, 2007).

Baby boomers are changing our view of educational needs. Merriam, Caffarella, and Baumgartner, (2007) summarized the situation we face today:

> Along with an economic rationale (the better educated need fewer social services) and a social stability rationale (millions of healthy retired people need something to do) is awareness that older adults as well as younger ones have an unending potential for development. (p. 8)

The amount of time Americans work in paying jobs (although the job structures will evolve) continues to increase for both financial and personal reasons (Shattuck, 2010). We have more interest in learning and, as a result, the number of adult Americans participating in education is now at a record high of 46%, with 71% of those between the ages of 25 and 70 saying they expect to continue working beyond a traditional retirement age (Merrill Lynch, Pierce, Fenner, & Smith, Inc., 2006; Shattuck, 2010). The number of participants in adult learning is even higher when self-directed learning and other types of informal education is considered. Volunteerism is also on the increase within the post-50 age group which further points to the desire for humans to contribute and learn (Butrica, Johnson, & Zedlewski, 2007).

Not only are we living longer, we are reproducing at a slower rate. Developed countries now reproduce at what the United Nations (2006) refers to as "...below replacement fertility ..." (p. vii) while the mortality rates are decreasing. Overall, the population is aging. The U.S. population is currently reproducing at a rate of .097 % according to the report from the United Nations. As the boomers cease working (although that is happening later in life), and then die, companies will struggle with the loss of knowledge, skills, and sheer numbers. This upcoming *brain drain* poses future issues for education, employment, and globalization.

Globalization

Workplace learning is a key component to success for an employee, the business employing the individual, and the U.S. economy. Continually improving the skills of our workforce, and increasing the value we add to products and services is the only way the United States will continue to lead the world in wealth generation and economic health. In a recent report, The HR Policy Association (2010) noted:

As economies become more global and technology more pervasive, the ability to compete will depend heavily on whether companies have knowledge-based workforces committed to continual learning and skills development characterized by the ability to adapt quickly to emerging markets, new technologies, and constantly changing business environments. (p. 7)

Research into ways to make workplace learning more effective is vital to the effort of continuing skill enhancement of workers. To understand why workplace learning research is so important one needs only look at the report issued by the National Center on Education and the Economy (2007) which stated:

If we are merely competent – even if our competence is world class – we will not be able to produce the new services or products that are path breaking and highly desired…. The reason – and the only reason – that the rest of the world would be willing to pay us twice as much as equally competent people is if we can add creativity and innovation on a grand scale to sheer competence…. (p. 24)

In 1990, the first "Commission on the Skills of the American Workforce, America's Choice: High skills or High Wages" (National Center on Education and the Economy, 2007) was published. Even then, the researchers were able to see the growing threat to our workforce from the developing world-wide market of low-skill labor. Nineteen years ago the Commission boldly stated the choice: "…abandon low-skill work and concentrate on competing in the world market for the high value-added products and services... or expect a continual decline in wages and an increase in working hours"
(p. xv).

In decades past, the United States led the world in education with the highest percentage of people who had completed 12 years of post-kindergarten education and the highest percentage of people earning college degrees. Although educational achievement in the United States continues to grow, we can no longer claim international leadership in the areas of completed high school and college degrees. Two significant examples, China and India, now lead the way in producing young people with degrees in math, considered by many historians and economists to be a key to economic success. There was, and still is, general agreement that our education system needs to be revamped (Ahrendt, 2008). One of the key changes needed in the formal education system is the

development of a commitment to life-long learning and a focus on developing the meta-cognitive strategies that facilitate learning and confidence.

Formal school education is not the only educational structure that must be changed. Because the U.S. economy has largely shifted from an industrial base to an information (or knowledge) base, it is evident that the skills of the individuals in the workplace must be continuously upgraded. As Johnson (1998) wrote, "Imagining myself enjoying new cheese even before I find it, leads me to it" (p. 58). Using the allegory of four mice whose cheese has been moved, Johnson offers seven rules for life:

- Change happens-the cheese moves.

- Anticipate change-get ready for the cheese to move.

- Monitor change-smell the cheese often so you know when it is getting old.

- Adapt to change quickly-the sooner you let go of old cheese, the sooner you can enjoy the new cheese.

- Change-move with the cheese.

- Enjoy change! Savor the adventure and enjoy the taste of the new cheese.

- Be ready to change quickly and enjoy it again-because the cheese keeps getting moved.

Clearly, the mice (and, by extension, humans) need both the motivation to change and the meta-cognitive skills to learn in order to anticipate the moving cheese and find it.

Technology

The United States is no longer an industrial society producing refrigerators and automobiles. Instead we have become an information society; creating ideas, knowledge, and new ways. With the technology we (and others) have created, our employees do not have to be in any given location (office, city, or country). Many workers could be located on the moon as long as they were provided with electricity and an internet connection via satellite.

Because change is always led by thoughts and ideas, we (as a country) must constantly be finding new ways of doing things, looking for new ideas about what to do, and developing new and deeper relationships internationally. Additionally, with never-ending changes in what we do, how we do it, what is legally required, and who we work with, we must always be learning.

The demographics of our country continue to change and, on a global scale, the cheese has been moved. It is now up to us to change how we teach our young and continually enrich the skills of those who are already in the workforce. If we choose to succeed in this new highly-competitive, knowledge-based, technology-driven, global economy, then we must do everything we can to raise the bar for our whole population.

But does everyone want to learn? Does our education system foster a thirst for continued learning? Is it even possible to nurture that thirst for learning in someone or is it inborn? Research by Fries and Dietz (2007) indicates a marked decline in motivation among adolescents. Competing interests, including sports and the opposite sex, are frequently cited as underlying causes of the decrease although the structure and lack of autonomy within a school environment are also noted. Given the even greater number of

responsibilities, priorities and interests that adults juggle, would anyone be surprised if most people rated learning for current or future job success low on their *to do* list? And even more importantly, assuming an individual is motivated to learn, does he or she have the critical skills for successful learning?

To answer those two questions, this study had two foci: motivation and self-regulated learning skills. The first part of the study evaluated motivation - reviewing what it is understood to be, what previous research has shown us about it, and how workers at a major U.S. financial institution self-report about their interest in, and efforts to learn content their employer deems important to job (and organization) success. The second part of the study focused on the key self-regulated learning skills and whether employees use them. As a correlational study, the researcher then looked at whether there was a correlation among the variables of motivation and learning strategies used.

Motivation

All living things engage in learning from the moment we draw our first breaths. And the learning appears to fall in one of three categories: automatic, forced, or chosen. Clearly, certain learning is automatic, hard-wired to our very DNA and can easily be seen when a foal struggles to stand mere moments after birth or a human baby moves its limbs, experiencing the world around it. With each passing moment, living beings acquire new understanding of the world and what we can (or can't) do within it. Some learning is forced (or required) upon us, or occurs without us even being aware of it. That is not to say that all such the learning is unpleasant, or that we would not choose those lessons, but, rather, that required learning is part of the unique fabric of each individual life. Social and cultural parameters are learned as we participate in our

community and are either praised or corrected. School is also forced upon most of us as a result of the culture within which we live and the choices we make through our elected officials. Other types of learning are entirely our choice. When we decide to learn how to ski or drive a stick-shift, that is learning we have chosen to do.

In early work done by Deci (1980) in the area of *Self-Determination Theory* he outlined his view of the basic human psychological needs as being autonomy, competence, and relatedness. In support of the three basic needs, he noted how the need for autonomy is observed in earliest speech as a child shouts *Me do*. It is also seen in the animal kingdom as creatures explore their surroundings for no apparent reason other than that they can. Competence, the second of the basic needs identified by Deci was also noted by White (1959), as a key part of being successful in a community and as a drive observable in all living things capable of learning. Relatedness goes to the fabric of the social creatures that we are. Most animals (and certainly humans) have a strong need to be part of a community and connected to others. Self-determination theory addresses the motivation we have for the choices we make without external influence or regulation.

Living creatures are also hard-wired for a certain level of conservation of effort. Because a threat or hard times might be ahead, effort is moderated on an ongoing basis. Whether it's termed laziness, misplaced priorities, or conservation of effort, people often choose what they want *now* (a nap) over what they want *most* (studying for job growth). As a result, competing priorities may negatively impact the motivation to learn something new.

So, what, exactly, is motivation? Weiner (1992) defined it as "...why human and subhuman organisms think and behave as they do" (p. 1). Wlodkowski (2008) termed it

the "...causes of human behavior" (p. 1). McClelland (1987) stated that "...motivation has to do with the why of behavior, as contrasted with the how or the what of behavior" (p. 4). For this study, the McClelland definition will be used.

Our view of motivation has grown through the years. As studies in the next chapter will outline, early motivational researchers posited a theory of expectancy. Expectancy theory is based on a self-efficacy view: that people are inspired to learn if they believe the task is learnable and that they can work diligently enough to learn it. In subsequent years the focus shifted to value: the idea that people must see the learning of something as being in their interest (either immediately or toward some future goal). Following that, researchers concluded that there was a combination effect (termed expectancy X value) where people are motivated if they believe the learning is valuable and that they can be successful. And, most recently, researchers have noted the *stew* that is motivation: the idea that many components that mediate an inclination to learn. Stew ingredients are believed to include things such as expectancy, value, individual goal orientation, cultural background, environmental aspects (such as the training methodology and interactions among students and teachers), and whether learners have mastered the meta-cognitive strategies necessary to be a successful learner.

Self-Regulated Learning

The second part of this study addressed the learning processes that employees utilize when engaged in learning. Lexical definitions of self-regulated learning (and many terms considered close synonyms) note the critical aspects of behavior control and the mediational impact of individual motives. As defined by Schunk and Zimmerman (1994, 2007), self-regulated learning (SRL) is "the degree that students are meta-

cognitively, motivationally, and behaviorally active participants in their own learning

process" (p.12). While the work done by Schunk and Zimmerman focuses on students in

an academic setting their work also readily ties to the needs of an employee to learn

critical job skills. Additionally, it ties to employers need for their workers to take

responsibility to learn the skills critical to success in the organization. Motivation is an

integral part of that definition.

When individuals self-regulate, they control their own thoughts, feelings,

motivations, and actions. Pintrich (1999) identified four strategies used in the self-

regulation process: (a) forethought, (b) planning, (c) monitoring, and (d) regulation.

While many definitions of self-regulated learning leave out the *forethought* process,

Pintrich considers it critical to successful learning. With forethought, the learner

identifies the task to be learned and makes the decision to do the learning. The literature

of those who do not include *forethought* as part of the SRL process shows that these

researchers apparently view forethought as occurring prior to the commencement of the

learning and so do not include it as part of the learning. Pintrich would disagree and

argue that forethought is the critical first component to any learning process. Schunk and

Zimmerman (1998) would agree and stress that; in addition, motivation must be present

through all steps.

Planning includes tasks such as goal-setting, skimming text material before

reading and performing a task analysis prior to beginning a new lesson. In monitoring

learning, learners check understanding against the self-established goals and regulate

their activities within the learning process. Regulation specifically includes the learner

taking steps to manage the environment and behaviors to enable satisfactory task

completion. By doing this, learners are able to adjust behaviors when they determine they have strayed from the established goal. Evaluation is the process whereby individuals review their decisions to learn and the steps taken during the process as well as the performance of an overall assessment of whether they have been successful with the learning goals.

Self-regulation is widely considered to be a process of meta-cognitive control wherein a learner plans a learning task, monitors progress and success and then adjusts the approach to achieve the learning goals (Hofer, Yu, & Pintrich, 1998). By that definition, self-regulation is a subset of metacognition. For the purpose of this study, metacognition will be differentiated from self-regulation by the inclusion of the following two additional components, as outlined by Ormrod (2004) which are not normally included within the self-regulation definition: "Being aware of what one's own learning and memory capabilities are and of what learning tasks can realistically be achieved and….Knowing effective strategies for retrieval of previously stored information" (p. 324).

Baggetun and Wasson (2006) argue that SRL "is seen as embedded in and mediated by a community and its cultural artifacts. In particular, the role of tools as social mediators of learning and the role they play in students' self-regulation are of interest" (p. 453). While Lave and Wenger (2005) focused more on the learning components of what they termed *situated learning*, they presented clear evidence of the educational role played by the characters in any work community. Whether the educational impact is from direct, on-the-job training (*here's how you do this*) or discourse regarding training (*value, challenges, or shared stories*) employees discuss the

knowledge they need and what they are learning. And these discussions impact motivation to perform as well as motivation to learn.

Self-regulated learning is also proposed by Willem, Aiello, and Bartolome (2006) to be understood "as a set of competencies that allows students to control the variables that have an impact on their learning process" (p. 438). They argue that SRL is situated within a cognitive process (the meta-cognitive processes to be more specific) wherein students direct their cognitive acquisition while making strategic decisions and managing emotional factors such as anxiety and stress from the learning activity.

All of these definitions either explicitly or implicitly include motivation as key to the learning process. In order for the *what* (the steps of SRL) to occur, the *why* (motivation) must be engaged. Schunk and Zimmerman (1998) provide the clearest connection by including motivation as part of the definition of self-regulated learning.

This study will first evaluate motivation (the *why*) for a required course of learning and then the strategies (the *what*) used by employees to tackle the course. While it might be apparent, to many, that successful learning is critical to business success, there are substantial financial reasons for businesses to more clearly understand the attitudes toward learning that employees hold as well as the processes employees use when completing required training.

Problem Statement

Corporations spend $134 billion (ASTD, 2010) each year on training programs and yet, the general consensus is that training is largely ineffective in achieving the desired results. This less-than-successful process leads to unhappy employees,

customers, and organizations. As a result of the disappointing results, corporate training approaches are believed to be in vital need of revision.

Corporations and schools are aware of the need for change in how they educate. However, although the awareness is there, not enough progress is being made, nor is it being made quickly enough. Research is needed to determine more effective ways to provide the required knowledge and skills required for employees to become more productive both for themselves and for their companies. Increasing the knowledge and skill levels of employees is dependent upon the employee and their commitment to learning. This study is intended to further the research in our understanding of motivation, which is considered key to all learning that is not automatic.

Purpose Statement

The purpose of this correlational research study was to evaluate the motivation of employees engaged in required learning, the learning strategies they used, and whether there was a correlation between their motivation and the learning strategies used.

Employees in the job roles identified for this study have specific financial analysis duties. The duties include understanding the components of the financial statements and what each category of account represents, completing the ratio analyses used by the organization, evaluating the overall financial condition of the company and recommending action (such as loan approval) to the organization,

In order to ensure employees have the required skills to complete their duties, organizations provide general and job specific training. In some cases the training is designed and developed internally. In other cases, organizations utilize an external vendor(s) with existing content or to create a program unique to the organizational needs.

Although the content of the required course of study is deemed critical by senior management to their employees' job success, the employees do not necessarily bring the commitment to the learning that the company would expect.

Importance of the Study

To date, studies on motivation and self-regulated learning have been conducted primarily in the K-12 or university environments. Limited research has been done on employee motivation and self-regulated learning skills. With the growing emphasis on improving the skills of the American worker, it is vital that research be done to help understand how workers can continue to grow their skills.

Evaluating all of the pieces that contribute to successful learning is beyond the scope of this study. And, recognizing that many of the components of a learner's preparedness are beyond the control of the employer, it is important to look more closely at the pieces that employers may be able to influence by making changes in their training programs that can improve the learning outcomes relative to the dollars spent on the programs. Evaluating the motivation of employees to learn and understanding what self-regulated learning strategies they use may increase the overall success of learning initiatives.

Research Questions

Overall, the questions address whether people are intrinsically or extrinsically motivated and what learning strategies they use when studying material that is required by the financial institutions. The questions are:

1. Is employee motivation internally regulated (desire to learn, develop new skills)?

2. Is employee motivation externally regulated (perform well compared to peers, earn incentives)?

3. What self-regulated strategies do employees use in studying complex material?

4. Is there a relationship between motivation and learning strategies used?

5. Do *more motivated* employees study differently than *less motivated* employees?

Definitions of Terms

A number of phrases are used to describe individuals who practice behaviors that contribute to their continual learning and skill development. These terms include: self-regulated learning, self-directed learning, personal mastery, and metacognition. Unfortunately, there is still some overlap and inconsistency in how the terms are used in the literature. In order to provide clarity in this study, the following definitions, will be used:

External motivation: Rothman, Baldwin, and Hartel (2007) say the term "...refers to either extrinsic motivation that arises from the desire to gain (avoid) an externally imposed reward (punishment), or controlled motivation that arises from the desire to please others" (p. 143).

Extrinsic goals: as defined by Anderman, Austin, and Johnson (1999) are "...goal orientations that focus on engaging in academic tasks to earn some type of reward or to avoid some type of punishment" (p. 201).

Extrinsic motivation: Ormrod (2004) says this "...exists when the source of motivation lies outside of the individual and the task being performed" (p. 427).

Internal motivation: Rothman et al. (2007) call this, "...either the desire to obtain internally imposed rewards (intrinsic motivation) or the motivation to engage in a behavior to satisfy one's own needs (autonomous motivation)" (p. 143).

Intrinsic goals: Having a source of motivation that is inside of the individual (positioned as an opposite to the definition of extrinsic motivation).

Intrinsic motivation: Ormrod (2004) says this is "...when the source of motivation lies within the individual and task" (p. 427).

Learning (or mastery) goal orientation (LGO or MGO): Dweck and Leggett (1988) propose this concept as reflecting "...a focus on increasing competence" (p. 257). Ames (1992) adds that these types of goals lead learners to "developing new skills, trying to understand their work, improving their level of competence, or achieving a sense of mastery based on self-referenced standards" (p. 262).

Motivation: McClelland (1987) says "...motivation has to do with the why of behavior, as contrasted with the how or the what of behavior" (p. 4).

Performance approach goal orientation (PPGO): This exists when individuals are motivated for the positive reasons of doing well, outperforming others, and demonstrating competence and (or) superiority (Elliot & Church, 1997).

Performance avoid goal orientation (PVGO); largely the opposite of the PPGO in that individuals seek to avoid looking incompetent (or dumb) or failing relative to some performance goal (Elliot & Church, 1997).

Self-determination theory (also commonly referred to as self-determined, or self-directed, learning, or SDT), as explained by Schunk and Zimmerman (2007) is based on the belief that people are born to be active, engaged in the environment, and constantly

learning new knowledge and skills which are then integrated into a logical structure that enhances their life success. As Reeve, Ryan, Deci and Jang (2008) note, "people engage in behaviors to actualize their interests and self-endorsed values" (p. 224). This also correlates to the concept of *self-actualization* which is the fifth, and highest, need according to Maslow (1943).

Both of these definitions of SDT have at their core the concept of autonomous self-regulation. This is differentiated from the directed (or non-autonomous) learning which generally occurs in the workplace. Self-determination theory works with self-regulated learning theory in that it speaks to the desire of the individual to learn which is then integrated with the meta-cognitive strategies used in SRL. The differences between the two are especially small if one includes *forethought* as part of the definition for self-regulated learning.

Self-efficacy: As defined by Bandura (1997) this concept refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3).

Self-regulated learning, as defined by Schunk and Zimmerman (1998), is "the degree that students are meta-cognitively, motivationally, and behaviorally active participants in their own learning process" (p.12).

Situated learning: Lave and Wenger (2005) recognize that "learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to work toward full participation in the socio-cultural practices of a community" (p. 29).

Social cognitive theory: Bandura (2001) recognizes the interaction of people with their situation and positions learning as coming either through a conditioning process or through observation and modeling of others. Noting what he termed a "reciprocal determinism", in an earlier study (Bandura, 1997, p. 6) he identified a triadic interaction of behaviors, our internal cognitive factors and environmental factors.

Volition: regularly viewed as "a choice, or decision, made by the will" (Dictionary.com).

Limitations

While the data indicate certain correlations between motivation and the learning strategies used, there are three limitations of note: the sample group used for the study, the survey itself, and the data collection which did not extend to the comparison of actual performance on the final (required) test.

The first limitation is the group of participants. Survey invitations were sent to 69 people within one organization who are currently engaged in job roles which specifically require the complex financial analysis skills taught by an online program provided by an external vendor. Forty-four surveys were completed which, while an excellent response rate, is still not a particularly large number. Two factors are believed to have contributed to the 64% response rate. First, four desirable prizes were offered for completion of the survey. That may have tipped the motivational scale for some people (especially those who were extrinsically motivated by the compensation aspect). Second, a number of the participants know the researcher which may have increased their motivation to complete the survey.

The analytical nature of the job roles of the survey participants may also have impacted the results. While there are strong sales and relationship management components to these roles, the reality is that fundamentally they require strong analytical skills. As such, people who apply for these jobs may already have an inclination toward analysis and so be motivated to learn the skills as well as to complete the survey. Certainly the recruiters would be looking for analytical interest as would the hiring managers. Because of that, both the motivation and the learning strategies of survey respondents may cause them to already be inclined toward learning this material.

The second limitation is the survey itself. The two instruments used for the study are both self-reported ones. Participants were asked to respond on their study habits; those used or those intended to be used. How accurate is self-reported data? As Cook and Campbell (1979) pointed out, participants typically report either what they believe the researcher anticipates the answer(s) to be or they report in a way that most positively reflects their skills, abilities, and beliefs. Argyris (1993) noted that the "theory espoused" (p. 65) might well indicate the intent to study using certain strategies; however, the "theory in use" (p. 65) (what they actually did) could be dramatically different. There is also the question of memory and how well someone may recall things such as how they actually studied. Winter (2012) notes the malleability of the memory and how historical events are re-written through every recollection and re-telling. For these reasons, while self-reported data has the advantage of ease of collection, it does have very distinct limitations.

As software continues to evolve, tracking (or trace) programs are being created. One of the studies reviewed in this report (Hadwin, Winne, & Nesbit, 2005) directly

addresses the question of what people actually do. While it does not evaluate motivation, the gStudy software sits behind program software (such as this online training program) and collects data on how long people are on a page, if they use the additional resources function, if they highlight material, if they use the *notes* function, to name a few of the traces they collect. That information would provide additional understanding of what learners do.

Because the organization approving the study required the survey to have no more than fifty questions, abbreviated versions of both the Work Preference Inventory (Amabile, Hill, Hennessey, & Tighe, 1994) and the Strategic Learning Questionnaire (Hadwin, Winne, Stockley, Nesbit, & Woszczyna, 2001) were used. If the full instruments had been used, it is possible additional correlations between motivation and learning strategies might have surfaced.

The third limitation is that there was no comparison of motivation or learning strategies with the actual performance on the final (required) exam or, even more importantly, performance on the job. While it is helpful to understand motivation and the learning strategies believed to be used, what really matters to organizations is performance. Learning teams can point to the logical ties of knowledge, skills, and abilities to performance but organizations focus on the bottom line. A longitudinal study that tracked motivation, study strategies, scores on the final exam, and even followed the participant through several years of performance would provide the bottom line information that most companies demand. However, obtaining organizational commitment to that longitudinal survey would be quite challenging.

Organization of the Study

The remainder of this study is organized into four chapters, references, and appendices. Chapter 2 presents a review of existing literature dealing with the theories and research previously completed in the area of motivation. Chapter 3 outlines, in detail, the methodology and research design of this study, including the instruments used to gather data, the precise procedures followed, and the determination of the sample selection for the study. In Chapter 4, an analysis of the data collected and a discussion of the findings are presented. The summary, conclusions, and recommendations for further study are contained in Chapter 5. The final portions of the study are devoted to the references and appendices.

Chapter 2: Literature Review

Historically, much of the research done on learning has viewed the learner as a blank slate, or *tabula rasa*. That view positioned the learner as a passive recipient whose role was to take in the learning and then apply it. Over time, that view has changed as researchers have noted the critical role the learner plays in the process as well as the many other factors that affect the learner: environment, tools, other people, cultural issues, the situated aspect of learning, and more.

Two areas of interest for many researchers are the motivation of (the *why*) and strategies used by (the *what*) learners. This study considered both of these issues within a workplace setting using a required course of study for a group of employees. The course content is required of employees and deemed to be critical for their job success. Specific to this study, there are three over-arching questions. First, when learning is externally regulated, are employees motivated to study? Second, what tactics and strategies do employees use to learn this content? Third, is there an interaction between the motivation of an employee and his or her tactics?

Eccles and Wigfield (2002) offered one view of the motivational research and categorized the then-existing research into four main types: (a) expectancy, (b) value, (c) integrating expectancy with value, and (d) integrating motivation and cognition. Expectancy, the oldest of the theories around motivation, focuses on individuals and their beliefs about initial competence, ability to learn the new content, likelihood of success, and perceptions of their control over the outcomes of their learning efforts ("Can I learn this?"). People who approach learning with positive beliefs about these considerations typically demonstrate better engagement and success from the learning efforts.

Expectancy Theories

Eccles and Wigfield (2002) identified two main types of expectancy theories: self-efficacy and control both of which address the individual beliefs about competence, autonomy, efficacy, control, and tie to the central question of, "Can I do this task successfully?"

Self-efficacy theory. Bandura (1997) is one of the keys to our understanding of human learning through his development of social cognitive theory (SCT) which focuses on efficacy (beliefs about the ability to learn) and human agency (role of the individual). From a SCT perspective, humans make choices that influence their participation in, experience of, and role as shapers of events. In fact, Bandura (2001) positions humans as the agents in that an individual "...intentionally make things happen by one's actions" (p. 2). To be an agent, one must be able to direct one's own development (including the motivation to start and continue), adapt to surroundings, and continually bring about self-renewal. While recognizing that SCT starts and finishes with the intentional (or unintentional) actions of an individual, Bandura (1997) notes the dynamic interaction with the environment and certain personal factors. Because of this triadic interaction, each person will have a unique learning experience that is mediated by personal characteristics, the environmental conditions, and chosen behaviors.

In the years since SCT was introduced as a theoretical concept, it has been used as a framework for a very diverse body of research, including in the fields of sports medicine and psychology, the education and achievement of children, human adjustment to changes in the environment, and adult learning in the workplace.

Adding the role of individual perception of personal efficacy led to a multi-dimensional model that varies for each individual. Similar to both the expectancy-value and attribution theories, Bandura's (1997) theory of self-efficacy positions our beliefs about our abilities (to do and to succeed) as key to our behaviors and, therefore, our results. Bandura identified two types of expectancy beliefs: outcome and efficacy. With outcome expectancy beliefs, an individual believes that certain behaviors (that is, practicing) will lead to desired results (that is, improves performance). Efficacy expectancy beliefs are centered on whether people believe they can effectively perform the behaviors that lead to success. ("I can practice hard enough to be successful in my next challenge.") This difference in expectancy beliefs is considered significant because individuals may have strong outcome beliefs ("practicing improves performance") but not believe they can be successful. ("I can't practice hard enough to be successful.")

Control theory. The second type of expectancy theory proposed by Eccles and Wigfield (2002) is control theory. Within this view of expectancy, individuals expect to succeed relative to the extent that they feel in control of their actions and results. Connell and Wellborn (1989) outlined three basic psychological needs: (a) competency, (b) autonomy, and (c) relatedness. Of these three needs, Connell and Wellborn primarily link competency to control, although it could well be argued that autonomy is an even bigger aspect of control. From a motivation perspective, control is key to most humans feeling motivated to start, continue, or finish any action.

Similar to the view of the person as *agent* as outlined by Bandura; Connell and Wellborn (1989) position the learners as "the subjective self, the knower, that orients actions, thought and emotion with reference to these psychological needs" (p. 52). In this

view, the individual has the most important role in learning far beyond the content, the

facilitator (or teacher), and the presence of other conditions.

Because the view of motivation based on expectancy is an older theory, studies

using this approach were not included in this review. There are a series of studies that

look at the combined interaction of expectancy and value which are included in this

review that will be reviewed in a later section of this chapter.

Value Theories

Although the previously discussed theories focus on the expectancies around

actions, they do not look at the value associated with the task or, put another way, the

various reasons people have for engaging in any given task (the *why*). Some of the *why*

reasons are outlined in the review of these value theories. Eccles and Wigfield (2002)

concluded that most of the research focused on three basic reasons people participate in

an activity or task: intrinsic versus extrinsic motivation, interest, or goal orientation.

Intrinsic motivation as defined by Covington (1999) is generally considered to

include three positive, affective elements: (a) pleasure taken in the learning (the action of

learning), (b) self-satisfaction for completing the learning successfully, and (c) pleasure

from what is being learned (what is learned) all separate from external recognition or

reward.

Intrinsically motivated individuals engage in a task or activity because they are

interested in it and enjoy performing it. Combining work done by Hebb (1955) and

White (1959), Deci and Ryan (1985) proposed a type of intrinsic motivation categorized

as self-determination theory. Agreeing that people are motivated to be stimulated and

have a basic need for competence, Deci and Ryan argued that people inherently seek out

challenging opportunities that are, inherently, intrinsically motivating due to their need for competence. Additionally, they postulated that people can only be intrinsically motivated when those two needs (stimulus and competence) are triggered.

In contrast to intrinsic motivation, extrinsically motivated individuals engage in activities (or tasks) for non-activity related reasons. The reasons could be instrumental (towards some other end) or for other considerations such as receiving a reward or avoiding punishment related to the completion of the task. Even within an extrinsically motivated choice, the basic needs for competence and self-determination can be activated. Whether an employee is going back to school to earn a degree that will support a higher pay grade or completing a required compliance course, the person is still reacting to needs for competency and achievement; however, the immediate choices (such as going back to school) are extrinsic to the actual goal.

Deci and Ryan (1985) noted that, as people become self-determined, the lines blur between internal and external behavior regulation. They identified four key stages of regulation that allow regulation to become internal. The four are: (a) external (regulation provided by outside requirements), (b) introjected (internal regulation based on feelings that the activity must be done), (c) identified (internal regulation as utility of activity accepted), and (d) integrated (internal regulation that the activity is important and valuable to the individual). From this view, even externally regulated learning or tasks (i.e. required) can become internally motivated over time.

Work done by Csikszentmihalyi (1977) identified one key reason for engaging in an activity as the internal experience provided while participating in it. Pointing to dancers, basketball players, and chess players who often refer to their practice

(performance or competition) as being *in the flow* or *in the zone*, Csikszentmihalyi noted that what was described as *flow* was those times when people are wholly immersed in their activity, distractions have disappeared, and they are almost unaware of any other aspect of their surroundings. These subjective experiences fit well within the concepts of intrinsic motivation when we consider the needs for stimulation and competency and the resulting enjoyment during the activity. It also correlates with the idea of learning or mastery goal orientations.

Historically, researchers have focused on intrinsic motivation as a state, rather than a trait. There has been some interest in evaluating motivational differences in people in terms of traits. Amabile et al. (1994) identified three types of intrinsic motivational orientation which are believed to be trait-like: (a) predilection for challenging or difficult tasks, (b) learning that is motivated by curiosity or interest in the content, and (c) the need for mastery and competence. Of these three, the interest motivated learning was considered by the authors to be the tied most closely to the ideas of intrinsic motivation as they argue the other two could also be linked to an extrinsic motivation.

Interest Theories

In the last 20 years, research has increased in the area of *interest*. Work done by Alexander, Kulikowich, and Jetton (1994) and Hidi and Harackiewicz (2000) focused on the differences between situational and individual interest. Situational interest is described as an emotional state that is triggered by certain features of a task or activity. By contrast, individual interest is perceived to be more stable and focuses on feeling-related and value-related concepts. Feeling-related concepts tie to the feelings associated

with the activity and are similar to the flow theory previously discussed. Value-related concepts are linked to the personal significance (or importance) that one ascribes to the activity. Additionally, both feeling and value concepts relate to the activity itself - rather than to the activity as an end to some other activity or event. Significant research has pointed to the increases in quality of learning when interest in the learning is triggered.

Schiefele (1999) also noted an additional aspect of value that he termed *valence*. Schiefele used this term to note that some feelings about a learning task may be combined in ways that complement or support a different learning task. For example, an interest in understanding how people learn a subject could trigger an interest in statistical analysis (a subject that might not have been initially desirable) as a way of evaluating test content.

Goal Theories

Goal theory has become a major part of the learning research in recent years as researchers have become more focused on the individual learner, rather than the classroom. One way of considering goal orientation has been through the Barron and Harackiewicz (2001) lens of mastery versus performance orientation. With a mastery orientation, individuals are motivated to learn the material out of a desire to acquire the knowledge and/or skills. By contrast, a performance orientation is focused on grades, being seen as doing well (or not badly) and/or doing better (or not worse) than peers.

Further research expanded these ideas by adding two sub-concepts within performance orientation: performance approach and performance avoid. Performance-approach individuals want to do well, be known as doing well, and do as well, or better, than peers. By contrast, performance-avoid individuals participate in learning (or a task)

with the goal of not failing, not being known to struggle, and/or not doing worse than peers.

Particular focus has been on performance-avoid orientations as there has been a growing awareness of the maladaptive behaviors that can occur when people participate in a learning activity from that negative orientation. People who operate from a performance-avoid orientation may not seek assistance when they are experiencing difficulties, may procrastinate working on the activity, and are more likely to give up when difficulties arise. Performance-approach individuals typically do not engage in maladaptive behaviors.

Integrating Expectancy and Value Theories

Atkinson (1964) is credited with the initial development of the expectancy-value model. In his model, the strength of the inclination to act is mediated by what he termed motive (assumed to be a stable characteristic), the belief that the act will be followed by a consequence and that the value placed on that consequence.

Weiner (1992) built upon Atkinson's model. Within the context of Weiner's attribution theory, individuals are believed to make situational judgments of what their efforts should be, for any given activity, based upon their determination of their ability, the difficulty of the material to be learned, and their interpretation of likely achievement outcomes. From this view, people make future effort decisions based upon past results and those past results are key to motivational beliefs.

More current theories combine the first two types of theories (expectancy and value) and have, as their bases, the work done by Atkinson (1964) although the beliefs and understandings have grown substantially since the 1960s. Three models that build on

Atkinson are reviewed: The Wigfield and Eccles (2000) expectancy-value model, the

Feather model (1988, 1992) and the Heckhausen and Heckhausen (2010) expectancy-

value model.

The model proposed by Eccles and Wigfield (2002) factors in the aspects of the

task (positive and negative), individual beliefs about ability, the costs associated with the

tasks (including the opportunity cost of not doing something else), the social cognitive

variables (how others view the individual and the task) and the values (explicit and

implicit) of the task. This model focuses on efficacy (or personal) expectations. From

this lens, people place a higher value on those tasks that confirm aspects their view of

themselves. This model is in contrast to the Bandura (1997) model, which puts emphasis

on the expectations of the outcomes (and their value) rather than on efficacy (and

likelihood of success).

Feather's (1982) work on values focused on what constituted value to an

individual. He defined values as stable within an individual and constituting general

beliefs about what is desirable (or not) from both the view of society and the individual's

sense of self and his or her core psychological needs. From there, he argued that these

values motivate our actions because certain tasks should be done. Because individual

values are unique, personal levels of motivation, for any given task, are going to vary

widely. His research supported the idea that values and perception of ability are

positively related, which he concluded implies that the value of any given task is

influenced by far more than just the task itself or our belief about our ability to

successfully complete it.

The Heckhausen and Heckhausen (2010) expectancy-value model builds on the core of the expectancy-value model by adding four types of subjective expectations: situation-outcome (likelihood of success if no action taken); action-outcome (likelihood of success through one's actions); action-by-situation-outcome (situational factors will help or hinder the action-outcome); and outcome-consequence (likelihood of the consequence of the outcome). Heckhausen and Heckhausen viewed the decision to act as being entirely intrinsically motivated.

One other category of motivation theories linked to expectancies and value is that of self-worth. Eccles and Wigfield (2002) put it inside their taxonomy in expectancy-value theories because of the links of self-worth to perceived task ability and value and the impacts self-worth has on behavior. For humans to have a positive self- image (one of the hallmarks of good mental health), they must see themselves as having achieved and being capable of success. Covington and Omelich (1979) demonstrated that students prefer to attribute success to ability and effort. The preferred attribution for failure was not trying rather than a lack of ability. And, although the research done by Covington and Omelich did not directly address this concept, it is considered likely that the need for competence, one of the core human psychological needs, does not end when school days end.

A total of 15 studies are reviewed in the following pages with the intention of providing a view of the research in the areas of expectancy, value, and the integration and expectancy and value. The studies are presented in order based on the age of the participants in the study.

Elliot, Shell, Henry, and Maier (2005) looked at external rewards (what they termed a performance contingency), whether they would impact achievement motivation, and how performance would be impacted. In the first study, they worked with 101 German high school students to evaluate how gender and grade point averages interacted with achievement goals (approach or avoid) using math content for the experiment. In the second study, they worked with 36 German high school students using German language for the content. In the first two studies, both performance-approach and mastery goal orientations showed significantly stronger (positive) results than performance-avoid orientations. There were noted gender differences with males scoring significantly higher in math and females significantly higher in the verbal content, but gender did not, otherwise, appear to play a role. In the third study, the researchers worked with 61 undergraduates in a U.S. psychology course using a similar approach as the first two and with the additional component of a performance contingency. Participants played a game similar to Scrabble and were told that if they performed well they would have an opportunity to earn extra credit in class. Performing well was defined based upon the goal orientation. Performing *well* for the performance-approach orientation meant an *exceptional* score on the first test. For the performance-avoid orientation, performing *well* meant that they were not one of the people with *poor* scores. Finally, in the mastery goal orientation, participants were told that if they *mastered* the task they would have the opportunity for the extra credit. Results indicated that, in the absence of a contingency (extrinsic reward), performance-approach and mastery goal orientations performed substantially better performance than performance-avoid. When a performance contingency (external reward) was present, it increased the effects of both

performance-approach (positive behaviors) and performance-avoid (maladaptive behaviors) orientations. The presence of a performance contingency had little effect on master goal orientation. These findings are in contradiction to other studies outlined here which indicate that the presence of external rewards diminished the interest and overall scores (representative of knowledge acquired) in the task(s).

The researchers noted a couple of limitations. First, the content used (both the math and German language) was limited to declarative content only with little creativity or evaluative knowledge involved. Second, given the participant groups, there is a question of the ability to generalize the findings to other data sources.

Determining the many components that mediate learning activities has led researchers a wide variety of directions. One of the areas of focus has been personality style. Using the big-five model of personality, Bidjerano and Dai (2007) examined the relationship between personality types and use of self-regulated learning strategies. Based on research coming from the psychometric tradition the five personality traits were identified as: openness to experience (referred to as intellect in this study), conscientiousness, extraversion, agreeableness, and neuroticism (emotional stability) Working with 219 undergraduate students (from a range of disciplines), participants completed a demographic survey (including items like age, gender, ethnicity, self-reported GPA, major, birth order, and plans to pursue a subsequent degree), the Mini-Markers (a shorter version of Goldberg's Unipolar Big-Five markers), and the Motivated Strategies for Learning Questionnaire.

Results indicate that students did select strategies in ways that co-varied with personality dimensions which point to the likelihood that self-regulated learning, in

general, is related to personality. Conscientiousness and intellect (openness) were related to greater tendencies for better time management, effort regulation, and use of higher-order meta-cognitive strategies such as elaboration and critical thinking. The big-five model did not fully explain student achievement (GPA) although effort regulation (conscientiousness) was significantly associated with achievement. With the exception of extraversion, the other four factors all pointed to behaviors which would encourage learning success. The research findings indicated that people with these traits (intellect, conscientiousness, agreeableness, and neuroticism) predispose individuals to invest time and effort to be successful. Given the three key tenets of basic psychological needs (competency, autonomy and relatedness) these results were not surprising.

Limitations for this study include the fact that demographic data (for instance the use of learning strategies and GPA) were self-reported. Additionally, the sample size was limited to undergraduate students. As the researchers concluded, the possibility that personality dispositions impact goal setting, self-efficacy, motivation and the learning strategies chosen provides beneficial knowledge to instructors and instructional designers is worth further exploration.

It is generally considered inarguable that the goals (including the lack of goals) a student brings to a learning situation impacts all aspects of the event. Vansteenkiste, Simons, Lens, Sheldon, and Deci (2004) conducted a study to determine if the present of two future goals (one intrinsic and one extrinsic) would result in a more optimal study outcome than when only one future goal was referenced.

Working with 136 (male = 24, females = 112) students in an undergraduate psychology course in Belgium, the researchers first tested whether any effects would

occur from double framing (intrinsic and extrinsic) a goal. After the pilot study showed differences, they moved on to the primary study.

The primary study consisted of 245 female students at a Belgian preschool teacher training college. Participants were randomly assigned to one of three conditions: future intrinsic goal (this content will help you teach preschool students about recycling); future extrinsic goal (this content will help you save money by recycling) or double goal (both intrinsic and extrinsic goals were explained). Using a series assessments, the researchers gathered data from the participants on stress, goal orientation (overall and for the content), test performance (how they did on a post-test focused on comprehension and their classroom presentation), and free choice persistence (going to the library of visiting a local recycling firm).

Overall results indicated that mastery-goal-oriented individuals were negatively related to a performance-approach orientation, unrelated to performance-avoidance orientation, and positively related to performance and persistence. These results are consistent with much of the research done on goal orientation; by contrast, performance orientation (approach or avoid) negatively predicted performance. A performance-approach orientation was also found to negatively predict persistence; as result which has not been found in other studies.

When the researchers compared single framing (intrinsic goal only) to double framing (intrinsic and extrinsic goals), interesting results were found. Overall, the single intrinsic goal participants rated the experience as less stressful, indicated they were more mastery oriented and less performance-approach oriented and they obtained higher scores on the test. The one area where the two conditions were the same was in free-choice

activities. Comparing the single framing (extrinsic goal only) to the double goal condition gave the opposite results. In every area, the double goal condition was superior to the extrinsic goal. A subsequent, mediational, analysis indicated that, when controlled for mastery orientation, there was no difference between the single (extrinsic) goal and the double goal condition. The researchers concluded that adding a second, extrinsic goal, to an existing intrinsic goal distracted the attention away from the learning task.

There were some obvious limitations to the study. First, it was undertaken in Belgium, so results might not generalize to the United States. Second, the participants were almost entirely female. Whether these results would generalize to a broader population is unclear. Third, the participants were all enrolled in a teacher training college and were focused on preschool. That, too, leads to the question of whether the results could be generalized to a workplace environment. Finally, as the authors note, the study goals (both intrinsic and extrinsic) were positioned in terms of approach (success) orientation only and did not include the avoidance orientation (not fail or be seen as less competent).

Achievement motivation has been strongly linked with learning orientations both positively and negatively (Butler, 1993; Dweck & Elliot, 1983; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Pintrich, 2000). Some research showed that performance goals, especially when accompanied by low self-efficacy beliefs, led to helplessness and maladaptive behaviors when difficulties were encountered (Butler, 1993; Elliott & Dweck, 1988). In contrast, learning goals were correlated to persistence and meta-cognitive activities even in the face of difficulties (Butler, 1993; Elliott & Dweck, 1988). Later studies showed induced goals had positive effect on performance with the best

results occurring when the students' own goals were engaged (Ames & Archer, 1988; Bouffard, Boisvert, Vezeau, & Larouche, 1995; Pintrich & De Groot, 1990; Pintrich & Garcia, 1991).

Subsequent research led to a more complicated conclusion, including a challenge to the conclusion that learning goals were most successful. Studies have indicated learning goals primarily influence intrinsic motivation, but not necessarily performance (Barron & Harackiewicz, 2001; Elliot & Church, 1997; Harackiewicz, Barron, Carter, Lehto, & Elliott, 1997; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000).

Using a series of studies (1 through 3), Grant and Dweck (2003) crafted a short assessment to measure the impact on goals (Study 1) and test the validity of the questions. An aggregate total of 592 university students participated in the first three studies.

Study 4 utilized 92 university students to address the research question: what kind of outcome goals would be affected in a failure situation? Participants completed the instrument (from Studies 1–3) and then read one of two randomly assigned scenarios about a failure experience in a university setting. The reading was positioned so that students should imagine it as happening to them. They were then administered another survey that asked them to rate what they would think if such a scenario happened to them, how they would feel, and what they would do. The final assessment was The Ways of Coping Scale, or COPE (Carver, Scheier, & Weintraub, 1989), which measures how students cope within certain categories, including active coping, planning positive reinterpretation, denial, and behavioral disengagement.

The researchers noted that a performance goal orientation has the additional components of performance-approach (succeed) and performance-avoid (don't fail or look bad to others). They then conceptualized three types of performance approach goals: (a) Ability goals that validate oneself; (b) Normative goals (perform better than others; and (c) Positive outcome goals (do well).

Results indicated that there was a positive relationship between learning goals and increases in intrinsic motivation when difficulties were expected; however, the ability and outcome performance goals were correlated to decreases in intrinsic motivation. Interestingly, normative goals did not predict loss of motivation, which may point to the value of competition, at least for certain individuals.

Study 5 differed from Study 4 in three key ways. First, it positioned the fear of failure within the context of a chemistry course; "an important and career-defining course" (Grant & Dweck, 2003, p. 548). Second, it identified successive setbacks (difficulties encountered) during the course of a semester. Third, it monitored the students over an entire semester which allowed researchers to evaluate how goal effects played out over time with adaptive and maladaptive behaviors.

Results indicated that learning goals were better predictors of course material processing, intrinsic motivation, higher grades, and greater overall improvement over time. Learning goals were found to be particularly useful when the challenge is significant, the task is personally important, or when the material is complex and requires deep processing. Ability performance goals led to maladaptive behaviors after a serious or series of setbacks. Outcome goals had few effects on any of the measures. Normative goals were negatively related to deep processing but did not lead to maladaptive

behaviors. The overall conclusions of the researchers was that further research was needed on performance but that learning goal orientation and normative performance orientation seemed to provide the best results.

Limitations of the studies include: (a) the study instrument assessed general goal orientation rather than measuring task-specific orientations, (b) the study participants might not be reflective of a greater population, (c) the study size was relatively small, and (d) because the content (Study 5) required deep processing, it might have increased the power of learning goal orientation.

Certain obvious truths sometimes seem to be overlooked when training programs are envisioned. As Ford, Smith, Weissbein, Gully, and Salas (1998) wrote, "Learning and transfer are critical outcomes for any training program. Individuals must acquire knowledge, skills, and attitudes and then apply these capabilities to other contexts" (p. 218). Historically, most research has focused on the trainee characteristics of cognitive ability, motivation to learn, and prior levels of education. Only in recent years has more interest begun to be paid to the role of the learner in the process. Over the past decade, more research has been undertaken to understand how the learners engage in the activity and how their personal learning or goal orientation impacts their approach to the learning. These researchers focused on how individual differences impact the learning strategies deployed which, in turn, impact the learning outcomes which, in turn, predict transfer to actual performance. Individual differences were mastery versus goal orientation. Learning strategies were metacognition, identical elements seeking and activity level. The learning outcomes were a knowledge test (9-item multiple choice), and final training performance (a series of 12 activity tests). The training performance tests were provided

by the Navy's TANDEM (Tactical Naval Decision Making System) training software. After the students were taught how to identify a target and assess it for threat level, they had to make the decision whether to judge the target *friendly* or *hostile*.

Working with a group of 93 undergraduates enrolled in psychology courses, this study by Ford et al. (1998) focused on a learning environment that required each learner to be active participants. Additionally, it sought to identify how individual differences and learning strategies correlate to learning outcomes and subsequent transfer to a more complex task. Finally, the authors sought to examine how trainee characteristics and the learning design correlate to knowledge and skill transfer in the classroom and subsequent application of the learning outside the training environment.

The overall goal of the study was to examine how goal orientation, meta-cognitive activity, and practice strategies related to a variety of learning outcomes and subsequent transfer wherein participants chose their own exercises to practice. Results demonstrated key relationships between a mastery orientation and meta-cognitive activity and self-efficacy during the training events. In turn, meta-cognitive activity was significantly related to the acquisition of knowledge and skill and to perceptions of self-efficacy. While identical elements seeking and activity level were positively related to learning outcomes, there was not a correlation between learning orientation and the use of these strategies. Learning orientation did impact self-efficacy. Individuals with a stronger performance orientation who had poorer performance on the final transfer task had lower self-efficacy. Meta-cognitive activity was the key strategy as it was related to all three of the learning outcomes. The researchers concluded that learning must be

evaluated for its impact on knowledge, skill, and affective outcomes (demonstrated ability to apply the learning to a *real* situation).

The researchers also noted the motivating relationship between self-efficacy and transfer performance. This relationship remained even after they controlled for the level of knowledge and skill developed. Simply put, motivation is strongly related to resilience. While performance orientation did have some relationship to learning outcomes and transfer, it was not as powerful a force as a mastery orientation. Five limitations were identified by the researchers. First, the study was quasi-experimental in design and participants were not randomly assigned to conditions. Second, the meta-cognitive activity data collected was self-reported, which may not reflect actual behaviors. Third, the study used certain unique components (such as identical element seeking) which were defined in a particular way. This construct might not be readily generalized. Fourth, the environment was set up in a way that participants had freedom to choose which practices they used, which might not occur in other settings. Finally, the authors noted that the overall learning process is more complex than the model they used. Nonetheless, the results of this study support the need to better understand trainee motivation, how to improve it, and how that will lead to better transfer of training.

Considering the goal of goal orientation, and especially the possibility for application within organizations (central to this study) Button, Mathieu, and Zajac (1996) conducted a series of four studies. Three of the studies utilized undergraduates in introductory psychology classes (379–434 students in each study) and one utilized 25 undergraduates who distributed a "Work Description Questionnaire" (p. 35) to family and

friends employed at that time. They received 215 responses to the questionnaire. The studies were intended to examine the dimensionality of goal orientation and the relationship of the orientations. Studies 1 (undergrads) and 2 (family or friends who were employed) provided data that were used to test factor models. After concluding on the model, Studies 3 (undergraduates) and 4 (undergraduates) were intended to utilize the models previously tested and test linkages between the orientations and related constructs.

All four studies used survey responses as well as demographic data (age and gender), and self-reported measures of college GPA and SAT scores. Key findings from Studies 1 and 2 were that incrementalists (ability can be developed through experience and effort) tend to be learning (or mastery) goal oriented while those that hold an entity view (intelligence is fixed) are more likely to be performance oriented.

Studies 3 and 4 provided further support for those conclusions and added that situational cues can impact the situation. Without cues, individuals typically adopt their own dispositional goal orientation. Within specific situations and prompted by cues, individuals may adopt a different, or moderated, response pattern. This has significant potential for the work environment. As Button, et al. (1996) wrote, "Goal orientation may impact the employee's level of motivation to participate in the training program, performance in the program, and the degree to which the trained knowledge and skills are transferred to the job setting" (p. 41).

The authors noted several limitations to their study. First, more variables should be used to evaluate goal orientations within a regular environment. Second, the social connection of goals and performance needs to be evaluated. Third, the instruments used

would benefit from the addition of further items for each scale. Fourth, the question of whether external influences (exclusive of the social connections) impact situational goal orientation needs to be tested. This last limitation speaks directly to the goal of the present study.

Barron and Harackiewicz (2001) have devoted much study to the area of motivation and how goals impact motivation. In these two studies, with 166 undergraduates in an introductory psychology class, the students were evaluated as to whether (and how) multiple goals impact motivation.

In the first study, the research question was "Are there particular types of goals that successful students adopt to facilitate their interest and performance?" (Barron & Harackiewicz, 2001). The researchers used the 16-item Achievement Orientation sub-scale from the Personality Research Form, a pre- and post- test (of perceived ability and interest in task), and additional questions from other surveys they've developed to evaluate achievement goals. Students then attended an audio-taped presentation on new methods for solving multiplication problems. This technique was used to control the content of the training material as well as the time allowed for learning. Half the group received problems of similar difficulty to the pre-test. The other half were given more difficult problems. The researcher then left the room after announcing that they had a few minutes to do whatever they would like and then a final assessment would be administered. This step was added to give participants an opportunity to look at other math problems, read a newspaper or just wait for the experimenter to return. A hidden camera was used to observe participant behavior. When the researcher returned, the final assessment (on interest during the task) was distributed.

The results indicated that both self-set mastery goals and performance goals were directly linked to positive outcomes. While only master goals predicted interest, only performance goals predicted performance. There were no interactions of mastery and performance goals. Additionally, the difficulty of the activity (the post-test) did not interact with either the achievement or mastery goals. As the authors point out, multiple outcomes were critical to understanding the results. If only interest had been measured, they would have concluded that mastery goals were critical. If only performance goals were measured, they would have concluded that performance goals can be beneficial and that there was a lack of support for either a mastery goal or multiple goal orientation.

In the second study, working with 154 university students in an introductory psychology class the research question was asked "Are there particular types of goals that we can assign to facilitate interest and performance?" (Barron & Harackiewicz, 2001, p. 713). With this study, the researchers sought to manipulate goals by assigning a single mastery goal, a single performance goal, and then both goals for the learning session. This study was intended to illuminate the value (or lack) of a multiple goal perspective.

This study was conducted in the same manner as Study 1 with three exceptions. First, participants were assigned an achievement goal orientation (mastery, performance or both). Second, process measures were evaluated twice during the session; right after the learning content was provided and again at the end of the session. Third, to evaluate the prediction that performance goals will have adverse effects when participants experience difficulties, the researchers provided feedback to the groups based on their assigned level of final test difficulty. For the group completing problems that were

similar in difficulty to the pre-test, they were told they were successfully completing the problems. For those with the more difficult problems, they were advised they were having difficulties correctly completing them.

In contrast to the first study, mastery and performance goals, when assigned rather than being self-set, had different effects. The effects of assigned goals indicated moderation by personality characteristics, especially differences in achievement motivation. Interestingly, for students determined to be low in overall achievement motivation (termed LAM), assigning the mastery goal led to the highest level of interest. By contrast, for students already high in achievement motivation (HAM), assigning a performance goal led to the highest level of interest. Their conclusion, supported by their previous research and that of others, was that the selection of the optimal goal assignment is dependent upon the motivation orientation of the individual. They found no evidence that performance goals, when difficulties are encountered, led to maladaptive behaviors. They did note that when difficulty was encountered, it negatively impacted enjoyment and concluded that there was an optimal level of difficulty to continue engagement and enjoyment.

Results also indicated that although the multiple goal condition utilized did not promote the highest level of interest for either the LAMs or HAMs, it did provide a buffer for the LAMs who preferred the multiple goal session over the performance-only goal. It also added a challenge for the HAMs who preferred the multiple goal session over the master-only goal. Their conclusions were that in the absence of individual personality information, the best approach would be to assign goals that combined mastery and performance.

The research did not provide support for externally generated achievement goals leading to performance. The researchers did note, however, that increased interest led to involvement in the task and completion of more problems. From that they conclude there is indirect influence of assigned goals and that there may be an impact on performance (not just interest).

A key limitation noted by the authors was the question of whether the origin of a goal moderates its effect. Specifically, goals that are suggested (or assigned) may not have the same impact as goals which are adopted by an individual in a particular situation. This limitation has a direct connection to the present study. Specifically, do assigned (or suggested) goals have the same value as those which are individually determined? There was also the limitation noted that the type of task and ages of the participants in this study could impact the ability to generalize from these findings.

From the earliest days in school environments, some students demonstrate enthusiasm for learning. Others do not. A number of studies through the years have considered the types of goals learners bring and how those goals impact their actions. Research has shown that pursuing goals that are largely motivated by intrinsic goals (for example. growth, community, relationships) lead to positive effects on well-being due to their focus on the three psychological needs of relationship, autonomy, and competence. In this study by Vansteenkiste, et al. (2004) they examined the effects of intrinsic versus extrinsic goals and autonomy-supportive versus controlling environments. The researchers tested whether the combination of an intrinsic goal with autonomy-support would improve learning, performance, and persistence. They used three areas of study content, protecting the environment (through personal choices), improving personal

communication stills, and increasing physical condition using Tai-Bo. In the first study, 200 undergraduate, female, Belgian, pre-school teachers were given environmental protection content to study that identified both intrinsic reasons to change their behaviors (recycling is good for the environment) and extrinsic reasons (recycling would reduce their monthly garbage bills) with one of four randomly assigned conditions (intrinsic-autonomy, intrinsic-controlling, extrinsic-autonomy, extrinsic-controlling). The autonomy condition presented the material as something they might like to learn or from which they could personally benefit. In the control condition, they were told that they were required to learn the content.

The second study had 377 undergraduate marketing students (a mix of males and females). This study utilized a topic described as business communication styles and positioned it as personal growth (intrinsic) or greater career opportunities (extrinsic) for the participant. The same sort of autonomy or control language was used.

In the final study, 224 high school students studied Tai-Bo content with an intrinsic goal of being healthier and an extrinsic goal of being more physically attractive. Again, the language of choice (autonomy) or obligation (control) was used to position the two variables.

All three studies consistently confirmed that intrinsic goals led to significantly higher learning, performance, and persistence behaviors. Autonomy supportive climates led to more adaptive behaviors and learning-related outcomes. Additionally, the combination of intrinsic goal and autonomy-supportive climates led to deeper processing of material.

Researchers noted that a limitation of the study was the lack of a *no-goal* condition (content provided without comprehension or application testing) so they could not evaluate whether such a condition would also be positively impacted by intrinsic goal conditions. An additional limitation was the participants used (High School and undergraduate students in Belgium).

The role of others in our education and development is unquestioned. Teachers play an obvious role as do parents. Historically, the role others play has not always been considered. There is growing recognition that the social components of human nature mediate every aspect of our lives. Shah (2003) studied how triggering the thoughts of a significant other can affect the value we place on a task, our level of persistence, and, even, our overall performance.

In three studies at a university in the United States, the researcher tested the effect on learning when participants were asked to answer questions relating to the difficulty and value of a task as well as their duty to complete it.

In the first study, 48 psychology undergraduates were given an anagram assignment, advised that individuals with high verbal skills would find 80% of words, and asked (among other questions) to list a significant other who would have a strong belief (positive or negative) about the difficulty of the task for the participant. The expectations of significant others were related to the participants' own view of the difficulty level. Expectations were also significantly related to their persistence, the perceived value of successful completion, and their overall performance.

The second study utilized 47 psychology undergraduates and tested using the same content (and positioning as to skill and success) but asked participants to list a

significant other and their view of the value of the task. The results obtained were the same as for the difficulty of the task. Participants who identified a significant other who placed value on the task had higher expectations of their performance, persisted longer, and achieved overall higher results.

The final study utilized 152 psychology undergraduates and tested the specific impact of triggering fraternal thoughts by using father-related words. Two conditions were probed with questions.   The first was the degree to which they believed their father would hope they would do well. The second measured the level to which they felt obligated to do well. In addition to the effect on goal pursuit, persistence, and overall performance, the researcher added questions that focused on the two dimensions of cheerfulness/dejection and relaxation/agitation while completing the task. Results for this experiment were the same as the first two studies relative to value, persistence, and performance. The additional dimensions also significantly responded to the prompt of the father condition. When students felt they did well on the test, they reported greater cheerfulness and more relaxation with the task. The opposite occurred when they felt they had done poorly.

While the author did not identify specific limitations, several were noted. First the participants in all three studies were psychology undergraduates at an age where fraternal influence might have more impact than in later years so the ability to generalize to a work population is unclear. Second, the test conditions used an anagram for the test which is far more limited in complexity than most work responsibilities. Nonetheless, the research points to the value of helping learners connect the value of a task to the expectations of someone who is important to them as a way of increasing commitment,

persistence, and overall performance. One can't help but wonder if workplace learning might benefit from an opening statement that says "Your Dad would expect you to pay attention and do your best".

A study by Simons, Dewitte, and Lens (2004) investigated whether the type of instrumentality ascribed to a learning task affects motivation, behavior and performance. Participants for the study were 184 first year nursing students. They completed a series of questionnaires; one of which focused on the instrumentality of each course. Questions focused on the value of the course in terms of education only (proximal) or education and future job (proximal and distal) value. Additionally they were asked to identify whether they were internally (e.g. personal development, broadening one's knowledge, future goals) or externally (e.g. required, financial opportunities, power) motivated. Results indicated that distal goals with internal motivations led to the best overall results on year end grades. Interestingly, neither proximal nor distal goals were affected by overall ego goal orientation.

Limitations of this study include the fact that all the participants were females and all of their courses were directly tied to their nursing degrees. The researchers noted that had any of the courses been less directly tied to the end goal (for example. philosophy or accounting), the results might have been less statistically significant. They also noted that the participants were enrolled in a vocational program (directly aimed at obtaining employment upon completion) which might make the results less likely to generalize to a broader population.

In any learning situation motivation plays a key role. An individual must decide to undertake the task and, to be successful, continue until the success goal is achieved. A

question many educators express deals with how to encourage learners to be more motivated for a particular task. Simons et al. (2003) evaluated whether the reason a person engages in a physical education activity would impact his state goal orientation, time engaged in the task, enjoyment, effort, motivation and performance. The concept of state goal orientation was intended to focus on a time limited event.

Working with a group of 695 Belgium undergraduates who were studying to become teachers, the researchers evaluated their participation in physical education classes. The classes were required and intended to provide some basic skills and enable the teachers (upon graduation) to substitute teach for a Physical Education teacher if necessary.

The study was quantitative in nature and used a couple of surveys to measure task (mastery) versus ego (performance) goals. They also utilized a survey to measure motivation and the perceived instrumentality of the classes. The first dimension measured considered the relationship between the task and future goal. If a correlation (task now ties to future goal), the researchers termed it endogenous. When it did not, it was termed exogenous. The second dimension focused on the type of conditions that regulate behavior: externally or internally motivated.

Students were assigned to one of three conditions: (a) Exogenous (no relation to future goals) task and External motivation (must pass test), (b) Endogenous (connection to a future goal) task and Internal motivation (while there is a test to pass, this knowledge will help me in my future career), and (c) Exogenous (no relation to future goals) task and Internal motivation (there is a test to pass and this could be beneficial in the future).

The key goal for the study was to evaluate whether instrumentality could be induced and how this manipulation would impact goal orientation, motivation, and performance. Results indicated that the manipulated instrumentality did cause different motivational and behavioral responses. Students who had an endogenous (help me be more healthy or useful for my future goal) and internal motivation (beneficial for my career plans) were more motivated, spent more time practicing and performed better. Students with an exogenous (no relation to future goal) and extrinsic motivation (I have to take this class and pass the test) demonstrated the least motivation, lower times spent practicing and overall lower scores. The group in the middle which had the exogenous (no relation to future goals) task and intrinsic motivation (there is a test to pass and this could be beneficial in the future) fell in-between the other two conditions.

Limitations include the use of undergraduate students in Belgium as well as the fact that the participants were all learning to be teachers who would, in all likelihood, have to substitute for a physical education teacher at some time. As a result, there is some question as to whether the exogenous (no relation to future goals) condition was truly viewed as exogenous to participants. Additionally, the researchers noted that while the experiment did appear to alter the students' behavior, they did not intend to suggest that short instructions could alter goal orientations permanently but, rather, that goal orientation could be manipulated. This conclusion has potential application for other learning situations where a learning goal orientation is desired.

Further considering the *why* people do things, Shah and Higgins (1997), conducted a study looking at the interactive value of expectancy, value, and the regulatory focus brought to bear on achieving the goal(s). As they considered regulatory

focus, it was through the lens of promotion (a view of the learning as an accomplishment) or prevention (learning as required and with negative consequences if not successfully completed). In four separate studies, they evaluated the impact of this lens when combined with opinions of the value of the class as well as the likelihood of success. All four studies supported the researchers' beliefs expectancy and value were mediated by the regulatory focus; the reason for the task being undertaken. The studies echo the research around mastery and performance goal (approach and avoid) orientation. No limitations were identified by the researchers. An obvious limitation is the fact that all the participants were undergraduates at a major university. An additional limitation would be that studies two through four asked the participants to consider next college steps given a variety of promotion or prevention situations. It is unclear whether this concept (next steps) would apply to a work environment and employees who, typically, view themselves as having finished school.

Covington and Omelich (1979) conducted a quantitative survey with 360 undergraduates in an introductory psychology course. Based on an imagined test, they were asked to consider how they would react given success or failure scenarios when the results were attributed to either effort of ability. Participants were randomly assigned the four possibilities. Results indicated that, when faced with a failure scenario, students prefer to link to cause of the failure to their lack of effort rather than innate ability. Additionally, the possibility of failure is sufficient to motivate some students to intentionally try less hard as a way of preserving self-worth. Far better to acknowledge a lack of effort rather than consider the possibility one lacked the ability to learn. Students were also asked to consider themselves in the role of teacher and how they would

respond to students in each of the four scenarios. Interestingly, the intent to issue

consequences in the failure scenarios was greater for those who exerted less effort than

for those who were deemed to lack ability which conflicts with the student preference for

being judged as not having tried hard enough rather than not being capable.

No limitations were identified in this study. The obvious limitations of the

participants all being drawn from an undergraduate population and being part of a

psychology course are clear. It is interesting to consider if these results could generalize

to a work environment. Do employees prefer to claim lack of effort rather than innate

inability when experiencing a failure scenario? Does that also impact the amount of

effort expended going in to a complicated learning situation? If yes, this research has

substantial value for understanding the motivation of employees as well as students.

Feather (1988) focused on the expectancy-value theory when he evaluated the enrollment

decisions of 444 undergraduate psychology students in Australia. His hypotheses were

that students would select courses based upon the subjective value of the course and their

self-efficacy (likelihood of success in the course) mediated by their gender, intellectual

orientation and social concerns. The three specific hypotheses were as follows:

1.   Values assigned to specific classes such as math or English would be

positively related to an individual's preferences for order (math) or pro-social

(English);

2.   Enrollment in specific classes would be mediated by both the value they

assigned to the course and their confidence, self-efficacy, of success.

3.   Males would assign higher value to math and personal order and control and females would place more value on English and expressive and social traits (such as empathy, forgiveness, and love).

This quantitative study used a questionnaire distributed during the first week of a new semester to ask participants why they'd made the course choices they had. All three hypotheses were supported. The first and second hypotheses indicated that a preference for order and control led to enrollment in math classes which was mediated by the level of confidence in ability to succeed in the course. For the third hypothesis (focused on gender), the results demonstrated that women placed a higher value on English and men placed higher value on math. Interestingly, there were no statistically significant gender differences with regard to ability for math or English. In other words, a woman could identify herself as good at math and, yet, not value the subject sufficiently to enroll

An obvious limitation is the use of students in a psychology course. As this is considered to be one of the *soft* (and pro-social) subjects, it is unlikely the sample included a representative mix of order or pro-social participants. Additionally, the use of university undergraduates, in Australia, would indicate a limitation as to the applicability to a broader audience. The researcher noted that the survey was conducted after their had enrolled in a specific university and the particular class schedule. As such, the results may have been skewed by the desires of the participants to report their thinking in a way that supported their decisions. Regardless of these limitations, this study does clearly explain the conceptualization of the interaction of Expectancy (one can succeed in the course) and Value (worth doing).

While limited, some research has been completed within work organizations. Chiaburu and Marinova (2005) conducted a study to evaluate three areas: (a) how pre-training motivation and skill transfer are related, (b) how individual and contextual factors impact pre-training motivation, and (c) the impact of supervisor and peer support and how they connect to pre-training motivation and skill transfer.

A total of 186 employees (all with one organization) who had completed at least one training course in the previous 90 days were surveyed. The researchers used six published scales to collect data in the areas of training self-efficacy, goal orientation, supervisor support, peer support, pre-training motivation, and skill transfer.

Findings supported prior research that pre-training motivation is predictive of skill outcome. Pre-training motivation was predicted, primarily, by individual factors such as a mastery goal orientation, a training self-efficacy and peer support (although to a lesser degree). The present study also supported that a performance goal orientation was important in predicting pre-training motivation. The competitive spirit does impact pre-training motivation. Peer support also demonstrated a strong relationship with skill transfer. Supervisor support was not related to motivation or skill transfer. Identified study limitations to the study include the overall small sample size, the use of self-reports, and the use of just the one organization. The authors noted the need for further research that addresses the malleability of goal orientation and whether situational cues could influence behavior.

Integrating Motivation and Cognition

The final category of motivation theories outlined by Eccles and Wigfield (2002) concerns how motivation and cognition interact. Theories considered include that of self-

regulation, the linkage of motivation and cognition, how volition impacts motivation, and efforts to combine self-regulation with an expectancy-value model.

Social cognitive theories of self-regulation and motivation. With these next theories, motivation and self-regulated learning link. Zimmerman (1989) defined a self-regulated student as one who brings meta-cognitive, motivational, and behavioral actions to the learning processes in pursuit of individual goals. Motivation is explicitly part of a self-regulated student as are self-efficacy beliefs and values all of which support the meta-cognitive and behavioral actions. The processes used by self-regulated learners include self-observation (monitoring activities necessary for goal achievement), self-judgment (comparing performance to an established standard of the performance of others), and self-reactions (evaluating outcomes). Within this definition motivation is assumed.

Motivation and cognition theories linked. Others have recognized that motivation influences cognition and, therefore, self-regulated learning behaviors. Pintrich (2000) built a model linking motivation and cognition that notes the importance of past achievements (or failures), the social aspects of the task (teacher as well as other students), the expectancy-value consideration, goal orientation, and the meta-cognitive aspects of self-regulation. In this model, the reciprocal impact of motivation, cognition, and social context are noted. While the most complex, this model offers an in-depth view of the many factors contributing to perceived efficacy, effort, value, and overall success in any given learning activity.

Motivation and volition theories linked. Halisch and Kuhl (1987) argued that motivation alone was insufficient for learning or task completion and that *volition*, the

strength of will to start and persevere through task completion, was too often ignored by

the motivational research. As he noted, motivation may lead to the initial decision to act

but it takes the volitional processes engaging in order for a task to be completed. Due to

the variety of distractors, more appealing alternatives, and difficulties engaged in tasks,

people often choose to not complete a task or activity in which they've engaged. They

proposed four volitional strategies to explain persistence: cognitive control (staying

focused on relevant material and limiting distracting material); emotional control

(limiting anxiety); motivational control (reminding oneself of the reasons for completing

the activity); and environmental control (managing the environment to support the task).

Integrating theories of self-regulation and expectancy-value models of

motivation. In recent years, there has been a growing recognition that there is not one

thread to the puzzle of motivation but, rather, a complicate weave that varies by

individual. In an effort to identify some of the major threads, a number of researchers

have begun to focus on the areas of motivation, cognition, and the related impacts on

self-regulation.

Wigfield and Eccles (2000) considered how to integrate the models of self-

regulation and expectancy-value. Obviously, there have to be linkages between what one

decides to do (based on the perceived likelihood of success, effort involved, and value of

the task) and how one goes about doing it. They note that few of the models consider the

importance of values in choosing action. Because of that, they note a need for future

research that integrates cognition, motivation and self-regulation. Additionally, they

noted that most of the research has focused on the rational and cognitive processes

associated with motivation and hasn't considered the impact of conceptual change or other affective processes.

A number of researchers have considered the role the individual plays in any learning environment and the mechanisms which must be engaged to affect learning. Bandura (2000) outlined self-regulation as the internal process that mediates external influences and provides structure for action; that it is only through self-regulating behaviors that an individual is able to control their own feelings, thoughts, motivations, and, fundamentally, actions.

Pintrich (2000) went further with the conceptual theory, positing that three specific strategies are used in the self- regulation process: (a) planning, (b) monitoring, and (c) regulating. The first strategy, planning, includes such things as goal setting, skimming before in-depth reading of material, developing a task list, and finally, accomplishment of the intended learning activity. The second strategy, monitoring, enables an individual to evaluate where he or she is with each step of his or her plan and to determine if the intended learning has occurred. The third strategy, the regulating, includes the actions the individual takes when she realizes that the results are not matching the plan. In some cases, the mismatch may be a result of the individual needing less action to complete the learning. In other cases of a mismatch, more time, or different learning strategies may need to be considered and implemented in order to accomplish the learning task. Subsequent to his work in the 1990s, Pintrich (2000) added a fourth concept, forethought. Forethought, the very first step in any learning, comes from an individual's identification of the task and commitment to learning.

Pintrich (2000) further built on the over-arching concepts developed by Bandura with the recognition that beliefs held by the individual impact the self-regulation strategies deployed. Certain types of motivation to complete a task are impelled by external factors. External motivation manipulators typically come from the carrot or stick reward/consequence which has been attached to completion of the task by someone (or something) else.

Internal types of motivation are triggered by an individual's evaluation of the task value, their belief in their ability to learn (self-efficacy) as well as their personal goal orientation. Task value is made up of our personal interest in a task, our perception of the importance of the task, as well as our perception of the future utility value of the task.

Self-efficacy is the double-edged sword of confidence in our ability to learn a task versus our lack of confidence. How we feel about our ability to learn (going in to a learning activity) directly impacts our learning accomplishments as shown in the work by Pintrich (2000). There are two main types of goal orientation as described by Nicholls (1984); learning goal orientation (LGO), which is more intrinsic and self-improvement oriented, and performance goal orientation (PGO) which consists of two subsets, a performance prove goal orientation (PPGO) and a performance avoid goal orientation (PVGO) both of which are primarily focused on pleasing others. In the workplace, the performance prove goal oriented (PPGO) individual seeks praise, advancement, and/or monetary rewards as the main criterion for measuring success. The performance avoid goal oriented (PVGO) individual seeks to avoid failing or being fired. Pintrich (2000) reported that individuals who are learning goal oriented are more likely to practice adaptive self-regulating strategies.

In the following pages, 22 studies are presented which investigated issues key to self-regulated learning, measured self-regulated learning behaviors (perceived and actual), or utilized tools which might impact self-regulated learning behaviors.

Motivation has many facets and, in a recent study, Dresel and Haugwitz (2008) addressed the question of whether cueing can impact it. In a quasi-experimental study with 151 sixth graders in Germany, the researchers tested the impact of attributional feedback (MatheWarp software) and training in self-regulation. This longitudinal study (one school year) had the students using the software to complete a series of math lessons. They focused on four research questions: (a) Would computer generated attributional feedback increase motivation and knowledge acquisition? (b) Would answering meta-cognitive (MC) questions increase motivation and knowledge acquisition? (c) Would answering the MC questions increase meta-cognitive control? and (d) Does attributional feedback affect meta-cognitive control?

The researchers used three conditions: (a) the placebo condition (PC) where students received feedback about the correctness of their answers, (b) the attributional feedback condition (AC) where they also received attributional feedback and (c) the enhanced attributional feedback condition (AMC) where they used the MatheWarp software, received the attributional feedback and completed worksheets with key meta-cognitive control questions. They utilized surveys and knowledge tests to gather results.

Results indicated that attributional feedback increased motivation and knowledge acquisition. Meta-cognitive questions did not appear to impact motivation or performance results although they did appear to increase meta-cognitive control (a

worthy goal in itself). Finally, there was no significant correlation between attributional feedback and meta-cognitive control.

While this study provided support for computer generated attributional feedback, there are two key limitations. First the study was completed with only German sixth grade students in a math class so the ability to generalize the results is uncertain. Second, the software used had pre-established attributional feedback prompts that might not readily translate to a work environment.

Building on their earlier research, Azevedo, Moos, Greene, Winters, and Cromley (2008) completed a study to evaluate the use of externally regulated learning (teacher supported or regulated) in comparison with self-regulated learning (without the teacher support) while in a hypermedia learning environment. In this quantitative study, 128 middle-school and high school students were randomly assigned to one of the two conditions: ERL (externally regulated learning) or SRL (self-regulated learning). Using a variety of pre/post tests and think-aloud protocols, the researchers evaluated how learners worked through the content, what strategies they used and how their overall performance changed.

The findings indicated the ERL learners increased, significantly, their declarative knowledge of the content and were able to describe a more advanced mental model of the subject. The verbal protocol data indicated that the ERL learners more consistently regulated their learning by linking to prior knowledge, used more effective strategic monitoring activities, and engaged in beneficial help seeking from the teachers. By contrast, the SRL students used less effective strategies, fewer monitoring activities, scored lower on the testing, and were, overall, unable to develop or describe the models

with the same level of depth and understanding. Initial data indicated the two groups were, generally, similar in attributes, prior knowledge, and study skills.

The researchers noted their study was limited by the age of the participants, their overall low prior knowledge of the content, and the unique nature of the hypermedia environment. They also questioned whether there was the equivalent of a *Hawthorne Lighting Effect* (Landsberger, 1961) by the presence of the human tutor and the complex aspects of an externally regulated learning environment. Even with the limitations, the value of a human tutor in instigating and encouraging self-regulating tactics is an important consideration for all learning environments.

Sierens, Vansteenkiste, Goossens, Soenens, and Dochy (2009) examined how teachers can promote self-regulated learning. Noting that self-regulated learning does not always occur automatically, they sought to explore whether teachers, providing autonomy support and structure could make a difference. Using a correlational design, the researchers evaluated the use of self-regulatory cognitive strategies as well as SRL procedural strategies. Sierens et al. defined the cognitive strategies as "…elaboration or rehearsal strategies" (p. 59) and positioned the SRL procedural strategies as "…monitoring the learning process, such as planning and giving self-feedback" (p. 60). The researchers worked with 526 Belgian middle to late adolescents (academic track) and students from the first of teacher education.

In this study, students were asked to complete the shortened version of the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1993) to evaluate their use of self-regulatory strategies. To assess the teacher autonomy and support the TASC (Teacher as Social Context Questionnaire) was used. The results

indicated a significant positive correlation between autonomy support and structure. Additionally, they found that structure, but not autonomy support led a main effect on self-regulated learning. Their conclusions were that structure led to more self-regulated learning under conditions of moderate to high autonomy. When students had very low autonomy, they typically practiced fewer of the self-regulated learning activities.

The researchers noted three key limitations to their study. First, the study was not set up in a way to confirm that teachers were directly influencing the learning, although that is typically assumed in learning research. Second, they noted the reliance on student self-reports to evaluate the effectiveness of the teaching style. The third limitation noted dealt with the possible applicability of the research to a younger population. Logically, the applicability question would also to an older (working) population.

Declining motivation (within the K-12 environment) has been noted in studies. Not only does motivation to learn appear to start declining somewhere around eighth grade, as people become engaged in more activities (family, work, personal interests) *motivational interference* becomes even greater. Fries and Dietz (2007) studied how 77 German students (grades 9 – 11) categorized their motivation when they were challenged with interesting activities were available. They identified two questions: (a) how does "the presence of an attractive alternative…" (p. 98) interfere with learning, motivation, and performance? and (b) how much does the physical presence of the attractive alternative impact motivation and performance?

Students were provided texts from which to learn about different illnesses (Ebola fever, rabies, and plague, to name a few). The attractive alternative was music video clips. Students were advised that the two alternatives represented unrelated activities

which had been combined for economic reasons. Using these materials, they were randomly assigned to one of four conditions: (a) students watched the videos before the learning task (considered the baseline or control group), (b) students were told they would be able to watch the videos after the learning task, (c) students had computer access to start the videos but were told to not watch them in between completion of tasks, and (d) students were allowed to switch to the videos upon completion of a task.

The researchers used two surveys (pre and post) to gather interest data, a software system that tracked screen changes, and a post-study knowledge test. Hardly a surprise, the respondents identified a clear preference for the music videos. Additionally, and not a surprise, students in the control group (watching the videos before studying the texts) reported less motivational interference. Additionally, students in the control group (no motivational interference) learned more than those in any of the other three conditions. Interestingly, the degree of presence of the alternative activity (conditions b, c and, d) did not have an effect on the motivational interference. Knowledge of the desirable alternative activity was sufficient to cause the detrimental motivational effects and subsequent impact on deep learning (applying the text content to a new situation) outcomes but not the surface level (basic text processing) outcomes. This study clearly points to the need for development of an expectancy-value conclusion for learners.

Two limitations to the study were noted by the authors. First, the students were paid for their participation which may provide a motivation different from day to day experiences. Second, learners knew they were learning solely for the experiment; no explicitly stated application elsewhere. Additional limitations include the sample size, age of the participants, the potential cultural learning differences as the sample consisted

of German students, and the nature of this study which only tested intrinsic motivation (no reward for completion – successful or otherwise – was included in the study).

What do people do when a task is boring? When quitting the task is not an option, many people will try to expand their competence or find a way to make it more challenging. Because of this adapting of self to a situation, the authors of the next study believe that, over time, the differences between an extrinsic and intrinsic motivation may blur.

Sansone, Weir, Harpster, and Morgan (1992) worked with undergraduate students in a series of three studies. In the first, a study group of 90 undergraduates in an introductory psychology class participated in one of six randomly assigned groups that had a mix of hidden words to find, copying text or replicating font in a lettering task. In the second study (with 121 psychology undergraduates) they utilized the same tests but used content that identified completion of such tasks to be beneficial to health. Results indicated that students found ways (strategies) to make the tasks more interesting. In the case of the hidden words, a significant number tried to find them faster. In both the copying and lettering activities they used more creativity as a way of making them more interesting.

In the third study (with 58 psychology undergrads) they had participants read materials about the value of listening to music, exercising, and listening to music. They were asked to imagine themselves committing to doing the activities a certain number of times a week and then evaluating which strategies would be the most likely to motivate them to keep their commitments. The five strategies were: (a) rewarding oneself,

(b) reading information that supported the benefits of the activities, (c) making the activity more interesting, (d) receiving feedback that they were doing the activities well, and (e) using no additional strategies. Regardless of the activity, participants indicated that they would use strategies that would increase their interest. Doing nothing was identified as the least effective when one had a goal.

Overall conclusions by the researchers are that individuals recognize the need to regulate motivation and use a variety of strategies to accomplish that. As the researchers noted, recognizing the value of the strategies does not, necessarily, equate to actually using the strategies which is one of the limitations identified. They also noted that the effects of increasing motivation were temporal and so longitudinal studies around motivation and learning strategies would be crucial. Other limitations noted include the age of the participants and that the task activities used would not be common for adult learners. A final noted limitation was that the third study used a relatively artificial reason to complete the task; that of health care benefits.

Another study by Narciss, Proske, and Koerndle (2007) utilized the Study2000 project. Specifically they were looking to develop and then evaluate certain tools that would support both teachers and students using web-based instruction. This study of 72 university students in Germany was intended to focus attention on the unique demands of self-regulated learning for learners in a web-based environment.

Narciss et al. (2007) began by reviewing the sorts of cognitive demands placed upon learners in any SRL situation. In contrast to a low learner autonomy situation, when students are placed in learning environments where they are expected to be more responsible for their learning efforts and successes, the cognitive demands are recognized

to be significantly higher as noted by Boekaerts (1999) and Pintrich (2004). As noted by Narciss et al., hypermedia systems "…impose additional demands due to (a) the extensive amount of information available, (b) their non-linear structure and (c) technological inconsistencies and limitations" (p. 1128). As the researchers evaluated the situation, they concluded that embedded and non-embedded instructional interventions. Toward that end, they created the Study2000 system.

Enrolled in an introductory, general psychology course, study subjects used the Study2000 system which enabled them to manage their learning while providing tracking data (sites used, time on task, notes taken) for the researchers. Informative tutoring feedback was provided through the system. Researchers measured results through performance on a series of quizzes throughout the course and a final exam. Results indicated that students who spent more time on the content performed better throughout the course. Interestingly, analyses of trace data indicated that students deployed, relatively, the same learning strategies in the web-based environment that they use when only text material is available. Students spent 70% of their time reviewing texts, 15% of their on the assigned tasks and only 13% of their time with the active learning and elaboration tools. A very small number used the optional experiments to further their learning.

The researchers noted three limitations to their study. First, the instructional content may have been too oriented to word processing methods which would have significantly limited the need for any additional efforts to learn. Second, because these students were still so new in the university environment, they might not have developed the necessary strategies for active, elaborated knowledge construction. This limitation is

considered particularly important for application to the work environment. Third, the quality of the educational content may have been, as the researchers felt, too good. That could have led students to conclude they had mastered the content sufficiently.

While not directly tied to the goals of this study, the results of this research pointing to the lack of use of available resources to facilitate and deepen learning is a well-known problem within the corporate environment. As a result, this study informed this author as to a wider range of possibilities to consider when evaluating the use (or lack of) of a given educational tool:

1. Moos and Azevedo (2007) conducted a mixed methods study of 49 undergraduates to evaluate the role of prior domain knowledge and SRL strategies when using hypermedia. Hypermedia, as they defined it includes the use of nodes (embedded texts, audio and/or animation) which "…students can access…depending on various factors such as learning goals and prior domain knowledge" (271). Their two hypotheses (inferred) were: Prior domain knowledge will be positively correlated with the proportion of SRL strategies used during learning

2. Verbalizations, during think-aloud protocols, will demonstrate the positive relationship between prior domain knowledge and the use of SRL strategies.

The results supported both hypotheses that prior domain knowledge was significantly related to the SRL process used during learning with hypermedia. Students with higher domain knowledge used significantly more planning and monitoring strategies when regulating their learning than those who had lower levels of prior domain knowledge. It was particularly interesting that those students with lower prior domain

knowledge primarily used note taking and summarizing as their learning strategies which is consistent with the research on comprehension that students with low prior domain knowledge are less likely to make inferences. Think aloud protocols underlined these issues as the higher prior domain knowledge students made specific references to previous knowledge on the subject and extended that knowledge to other, new situations.

The researchers noted a couple of limitations. First, the study was completed using only college students and so may not be generalizable. Second, they indicated concerns that gender differences may exist in how SRL develops and those differences might impact both prior domain knowledge and the use of SRL strategies.

While this study is not directly linked to showing how SRL positively impacts performance, it does point to the value of SRL when prior domain knowledge is being accessed for new knowledge acquisition. In that context, it was deemed relevant for this study.

Maslow's (1943) hierarchy of needs provides a taxonomy of human needs. According to this generally accepted theory, people have the following ordered needs; physiological (water, food), safety, social, self-esteem and self-actualization. Only when the lowest level needs have been met (the physiological) can the next level of needs be pursued. After those basic survival needs are met, other needs may be pursued in tandem (e.g. social and self-actualization). Most researchers and educators pay little attention to the entire hierarchical order, instead focusing on those items that are clearly positioned within the learning environment such as esteem and self-actualization. Isaac, Sansone, and Smith (1999) conducted two studies to evaluate how a social context may contribute motivation, interest, participation, and future interest in the task as part of a career

interest. In the first study, a quantitative study, 84 undergraduate psychology students completed a series of questionnaires designed to measure their inter-personal orientation (IO). This study included question to determine their preferences for autonomy-support (seeks participation with others in decision making), controlling (takes charge and directs others), or impersonal (follows the lead of others. This study showed that, regardless of overall inter-personal ratings, people preferred the autonomy-support approach. Given the social nature of humans, this result was not unexpected.

In the second study, which utilized a mixed methods approach, 127 undergraduate psychology students were randomly assigned one of three conditions in a mock *design a campus* landscape architecture experiment. The three conditions were alone (work only by yourself), outcome dependent (work together and derive one solution), or outcome independent (working together was optional although each student was to create their own plan). During the activity, the participants were video-taped and the interactions were subsequently coded for frequency and type of interaction. Additional students had been trained to act as confederates who would interact with participants if the participants initiated the conversation. All participants were told they might be video-taped although the only obvious video-taping equipment present in the room was clearly not being used.

Results indicated that participants in the outcome dependent group believed that a career involving this sort of task would offer interaction opportunities. Considering the three conditions, participants working on a task in the presence of another person (even when they were not working together) reported greater interest in the task. For those participants with a higher inter-personal orientation, they also noted a greater likelihood of engaging in other, similar activities in the future. All participants rated maintaining

harmony and expressing thoughts and information as more important than finding commonalities (of task approach), seeking input, or taking responsibility.

When the researchers considered the effect of the presence of the confederate, the outcome dependent participants had more interactions and they were more on-task (than off-task). Interestingly, even though the confederates were asked to not initiate interactions, in the high IO group, the number of off-task, confederate initiated, interactions increased significantly and positively impacted the overall motivation levels of the higher IO participants. These exchanges point to the likelihood that, for the high IO participants, the social interaction became part of the task. The high IO group also demonstrated fewer math errors in completing the cost calculations for the project. For the lower IO individuals, the effect appeared to be in the opposite direction, including increasing the number of math errors. The lower IO individuals appeared to see the presence of the confederate as being outside the task rather than a part of it. From this they concluded that the best task situation would include conditions that support the needs of the individual learner.

The researchers noted significant gender differences with females showing a significantly greater level of IO orientation. Nonetheless they identified a strong, consistent preference for learning situations that provide an autonomy-support framework so that each learner has the freedom to structure an activity in ways that make it more individually interesting.

Limitations include the use of undergraduates for the data sample consisting of psychology students. Whether that would generalize to a broader group is uncertain. Additionally, school environments typically foster a social environment which might not

look the same in a workplace setting. Finally, it would be interesting to see how the results might differ if the confederate was positioned, in some way) as an expert. Using a mixed-methods study, Hill and Hannafin (1997) evaluated the strategies that adult learners used in a hypermedia environment. While the sample is very small, the four participants did provide an illuminating view in to how people use prior domain knowledge when learning something new.

Initially, the current and prospective educators enrolled in a university-level technology for educators course completed a survey designed to measure their knowledge in three domains (meta-cognitive, system, and subject) as well as a survey designed to evaluate their self-efficacy toward technology. The researchers had five key questions:

1. What strategies do learners use in open-ended hypermedia systems?

2. Will meta-cognitive knowledge affect the strategies chosen?

3. Does self-efficacy (perceptions of) impact the strategies selected?

4. Does prior system knowledge impact the strategies deployed?

5. Does prior subject knowledge affect the strategy choices made?

Using a variety of pre/post surveys, think-aloud protocols, and audit trails, the researchers tracked students' perceptions of their knowledge in the domains, their self-efficacy, and key meta-cognitive strategies they understood and used.

The researchers established, early on, that their goal "…was not to generalize to a broader population, but to characterize both diversity and similarity of individual strategy use…" (Hill & Hannafin, 1997, p. 40) within the course content. Based on that limitation, they then reviewed the results of their in-depth evaluation of these four individuals. Overall, their conclusions were that a variety of strategies were used, that all

levels of prior knowledge were accessed, and that when a student became disoriented, it negatively impacted self-efficacy as well strategy choices and effective utilization. Meta-cognitive strategies were significantly used by all four although they were more effectively used by those students with a greater level of prior domain knowledge. Their key recommendations were for more research focused on reducing disorientation with students (including control issues related to internet use), recognizing the substantial cognitive load using the internet generates, how important it is to teach students how to integrate prior and new knowledge, and the need to teach students how to learn in such an autonomous (as opposed to teacher structured) environment.

A study that particularly interested this author was completed by Hadwin et al. (2001). Working with a group of undergraduates completing an educational psychology course, the researchers evaluated study tactics, the contexts in which they used (or didn't use) the tactics, and the goals they associated with the tactics. Using questions from three key instruments (LASSI, MSLQ, and the SPQ) the researchers developed a single instrument called the Strategic Learning Questionnaire. The Learning and Study Strategies Inventory (or LASSI) developed in 1988 by Weinstein, Zimmerman, and Palmer) is a self- reported instrument used to measure strategic and goal focused learning. The Motivated Strategies for Learning Questionnaire (MSLQ) was developed by Pintrich et al. (1993). This tool was designed to evaluate the motivational orientations and strategies used relative to a specific course. The Study Process Questionnaire (SPQ) was developed by Biggs (1986). This tool measures how students approach learning by looking at motives and strategies.

Participants were surveyed over a four week period. Initial data was collected using the custom survey described above. During the four week period, students were asked to make notes (using a checklist) on how they studied for three possible learning contexts: reading for learning, studying for the mid-term exam, and preparing to write a paper.

Study results indicated that students report varying study tactics based on the content. Specifically, students use different tactics when they are learning and studying for an exam than they do when they are preparing to write a paper. While studying styles and tactics were robust, they varied based on end goal. Results indicate that less robust tactics were utilized for both reading to learn and studying for a test than for preparing to write a paper that would synthesize learning. This research is important as it points out differing assumptions about commitment to learning and the activities deployed.

Four limitations were noted. First, the study identified specific learning contexts for students, something which might not be present in workplace learning. Second, the researchers noted the questions that might arise from the grain size reflected by the use of scales rather than individual items. Third, as learning and self-regulation occur over time, a *Hawthorne Effect* (Landsberger, 1961) may have occurred in this study that would not be observed in a longer study. Fourth, tactics overlap somewhat and so participants may have noted the use of one tactic without noting it subsequently moved in to another tactic.

Implications of this study clearly flow over to the workplace. If an organization has determined certain content is critical to success (such as following a new regulation),

how should that content be taught? When presented as a read for learning and to pass a subsequent test, does the kind of learning occur that will enable the employee to apply it in situations that might not mirror the examples presented in the learning content? Do adult employees behave any differently than college students?

In another study, this one using a mixed-methods approach, the researchers used an SRL tool known as CoNoteS2. Hadwin, Boutara, Knoetzke, and Thompson (2004) worked with 50 undergraduate student enrolled in a 3rd year course in instructional psychology. After the course was completed, they identified eight students who met their specific sampling criteria and were categorized into one of the following four categories: High, Average, Low, and Improving. The students were identified based on grades (pre/post comparisons) and the trace data collected by the CoNoteS2. Additional data was gathered from weekly recall interviews and a final reflection by the students as they examined their performance over the weeks of study. Concluding profiles of the students were formed by looking at studying activity, test results, and student reflections. The researchers had three goals for the study: (a) explore techniques for evaluating the trace data compiled by CoNoteS2; (b) examine SRL as it unfolds over the course of the semester; and (c) evaluate the combined sources of data from student self-reports, student self-evaluation of their studying efforts, and compare those to the trace data gathered via the tool.

When they compared the eight students, significant similarities were found between the High and Improved performers. First, they utilized deeper approaches to studying that fostered processing material more deeply and understanding the

connections across the content. Second, they demonstrated an orientation to learning the material and adapting their efforts in support of their needs.

There were also certain similarities between the Low and Improved performers. Both of these groups over-estimated, initially, their understanding, expected study performance, and predicted test performance. Interestingly, both of these categories engaged in a more sophisticated meta-cognitive analysis of their learning after they were given detailed feedback. These results speak to the need for feedback attuned to the individual student and time for students to process their learning activities, processes, performance and to strategize how they will approach learning differently on the next set of activities.

Another important finding was that the trace data obtained by CoNoteS2 did not explain the changes in individual performance. This finding is supported by the self-regulatory learning theories that point to the multi-dimensional aspects of metacognition and the mediating influences of each of the four key components of SRL: decision to enter the learning (motivation), planning (establishment of goals and tasks), monitoring, and evaluating results. This also further supports the argument that SRL is not a trait but rather an event or, actually, a series of events. The authors strongly encourage future research to evaluate the value of trace collecting and, even more importantly, to consider how trace data is interpreted.

Clearly the small sample size is a significant limitation for this study and so the results should not be considered generalizable, as noted by the researchers. They did, also, identify the issue of data collection and analysis tools, which, in their view, are not yet adequate to fully explore the issues of SRL and SRL tools. Their final note of

limitation was that traces of studying tactics may not have fully represented how students' self-regulation emerges over time.

From the research, it appears that self-regulated learning behaviors are important and not sufficiently used by children or adults. In an effort to address the deficiency, a number of researchers have worked to develop software technologies (such as CoNotes2 and MatheWarp) to improve the learning.

Because the learner, historically, has often been viewed as a passive recipient, research done by Fisher and Ford (1998) endeavored to evaluate how the learner behaves within the learning process. They wanted to evaluate the amount of effort and the type of strategies individuals would use in the acquisition of knowledge. They identified four areas of focus: (a) the impact of mastery versus performance goal orientation on mental workload; (b) the relationship of goal orientation to the key learning strategies of rehearsing, organizing, elaborating, and creating examples; (c) strategies chosen will impact learning outcomes; and (d) focus on learning has a greater impact than time spent on the learning task.

Working with 121 undergraduate psychology students, the researchers asked them to study material (a fictitious account how investment counselors make stock predictions) and then complete an 18 item, multiple choice test. They utilized the Wonderlic Personnel test (Wonderlic, 1930), now known as the Wonderlic Cognitive Ability Test, to measure cognitive ability and a series of questions from other instruments to measure goal orientation, amount of effort expended in the task, and mental workload.

Study results indicated partial support for effects of goal orientation on effort. Mastery orientations led to greater effort (focus) and the use of deeper learning strategies

both of which resulted in better performance outcomes. Rehearsal (the most simple)

strategies were the most frequently used; possibly because the study participants knew

the test was made up on multiple choice questions. Overall, the researchers concluded

that performance was primarily due to cognitive ability and time on task although a

mastery orientation and limited off-task activities also played a role. Of the types of

learning strategies, active practice was the most important for successful knowledge

acquisition. Their conclusion points to the value of case studies and practice exercises to

drive learning.

Certain limitations were noted. First, the study consisted of undergraduate

students. Second, the data was collected using self-reports (except for the knowledge test

at the end) which may have allowed for response distortion. They noted the possible

value of teaching (re-teaching) key meta-cognitive study skills such as organizing,

elaborating, and creating examples as many students seemed to use rehearsal as their

default study strategy. A final note was that success on a multiple choice question would

not, necessarily, translate to skills used on the job and so further research is needed to

address actual transfer to the workplace setting.

Azevedo, Greene, and Moos (2007) evaluated 82 college students to assess the

impact of a human agent (professor) on facilitating learning within a hypermedia

environment. The students were divided in to two groups; a self-regulated learning group

(SRL, no professor support) and an externally regulated group (ERL, which had a

professor assisting the students throughout the learner activities). Driving this research

was prior research by Azevedo et al. (2005) that indicated "…most students, even

undergraduates, have difficulty self-regulating their learning with hypermedia, which

impedes their learning of challenging topics" (p. 68). From those results, they decided to investigate the impact of a human tutor as an external regulating agent. The researchers identified three research questions:

1. Will scaffolding conditions influence students' scores on the matching, labeling, and diagramming post-tests?

2. Will scaffolding conditions support students' adoptions of more sophisticated mental models?

3. Given the two conditions, will students' self-regulate differently?

To evaluate the differences, a pre and posttest were used. During the study period, the participants were asked to use think-aloud protocols to demonstrate their awareness of goals and decisions for strategies. For research question 1, the results showed no difference in the simplest of the activities, matching, between the two groups. There were statistically significant differences in both labeling and diagramming with the ERL group performing better.

Research question two spoke to the more sophisticated mental models. Here, too, the ERL group, with the support of a professor, outperformed the SRL group, indicating the value of a human agent in assisting learners to deploy more strategic methods of learning complex content. The third research question addressed the meta-cognitive activities generally correlated with successful self-regulated learning. In four of the five activities analyzed, the ERL group showed a significantly higher rate of utilization. These four are: planning, monitoring, strategy use, and handling task difficulty. The one activity that did not show a statistically significant difference was interest in the task.

Summarizing their results, the researchers noted there was need for testing in other environments (both participant ages and study content) to determine if the results could be generalized to a broader audience. While their research did not address the issue of the range of external regulation, it is a question that has impact for the future, as how much support is needed varies by individual and the content being learned. This is especially of interest for the workplace as more learning is being moved to a non-externally regulated, self-study, hypermedia environment.

Azevedo and Cromley (2004), in a quasi-experimental, quantitative study investigated whether training on SRL would enable students to learn more and more deeply. Working with 131 undergraduate students, they focused on these two research questions:

1. Does training students in SRL lead them to develop a more sophisticated model of the study content?

2. How does training students to use SRL influence their ability to regulate their learning while they are in a hypermedia environment?

The participants were divided into two groups, a control group and the treatment group. The treatment group was provided training in SRL, in a 30 minute session that focused on specific strategies associated with the meta-cognitive skills of planning, monitoring, selection of learning strategies, and final evaluation of their results.

The pre/post results showed that "…hypermedia can be used to enhance learners' understanding of complex topics if they are trained to regulate their learning" (Azevedo & Cromley, 2004, p. 529). Additionally, the results pointed to significant additional gains in understanding of the topic, both in terms of quantity of material and in depth of

the subject matter. Verbal protocols provided further support that learners trained in SRL skills more effectively utilized key SRL processes that led to significant growth in their mental models.

In presenting their final conclusions, and recommendations, the researchers noted several limitations. Their first note, relative to limitations of their study, was based on the hypermedia aspect of the learning and how little we really know and understand about that environment. They also referenced the low prior knowledge of the content and the possible impact from the presence of one of the researchers. Their final comment, pertaining to study limitations, focused on the need for refinement of the statistical analysis used in processing data such as they collected.

Sobral (2000) evaluated one specific aspect of the meta-cognitive processes associated with self-regulated learning, that of reflection. As defined by Sobral, reflection "…comprises the act of thinking about what one has learned as well as how one learns, and seems to be an essential element in the ideal learning cycle..." (p. 182). In this quasi-experimental study, Sobral worked with 103, third year medical students over a one year period. The study included a 30 hour elective course, delivered at the beginning of the student year, with a main section devoted to a learning skills experience. The goals of this section were: (a) acceptance for personal responsibility for learning, (b) expansion of variety and efficiency of study skills used, (c) improvement in specific decision-making around learning issues and objectives, (d) growth in using different methods to deal with problems and learning needs, and (e) increasing the ability to self-appraise relative to the strategies used and results obtained. These five objectives are all clearly in line with the concepts and foci of self-regulated learning. To evaluate the

changes, the researchers utilized several questionnaires and a comparison of grade point averages.

Results indicated a small (but significant) change in the level of SRL strategies used by course participants. Specifically, reflective students reported greater benefit and enjoyment from their studies as a result of their reflection. The results indicated they developed a greater understanding of the course contents, their learning processes and that their overall goals and sense of self-esteem was enhanced through the use of the reflection. While the amount of the change in level of reflection was small, 81% of participants in the treatment group had a positive change. Of the small group that had a negative change, it was five times more common in students who had a low reflective stance at the beginning of the term. This speaks to the need for the young to be encouraged to develop reflective practices and for teaching professionals to develop educational content that supports reflection as an integral part. The control group showed no overall change, as was expected.

While the study noted a small increase in overall strategies used by students, the researchers noted that it could have been due to a growing maturity or personal commitment, rather than the study participation itself. Because the change was small, additional research would clearly be warranted to determine if the effects were related to the study treatment or other factors.

Porath and Bateman (2006) investigated how goal orientation and self-regulating tactics impacted the job performance at a large, multinational, computer product and services organization. This longitudinal study included 88 sales people who worked

primarily autonomously. Surveys were used to evaluate participant goal orientation and later compared to performance goals in the job. The researchers predicted the following:

- Learning and performance prove goal orientations would be positively related to job performance. Performance avoid goal orientation would not be.

- Learning and performance prove goal orientations would be positively related to four specific self-regulating tactics: feedback seeking, proactive behavior, emotional control, and social competence. Performance avoid goal orientation would not be.

- Feedback seeking, proactive behavior, emotional control, and social competence will be positively related to subsequent job performance.

- Relationships between the learning/performance prove goal orientations and subsequent job performance will be impacted by the four SR tactics of feedback seeking, proactive behavior, emotional control, and social competence.

As hypothesized, results indicated that learning goal and performance prove goal orientations were positively related to sales performance and that performance-avoid goal orientation was negatively related to performance.

In reviewing the limitations of the study, the researchers noted that the use of self-reports might not match the behaviors actually deployed. Additionally, the relatively small sample size might have affected certain of the mediation results. They also noted that effective SRL might be impacted by the nature of and the technology utilized for the job.

Sellars (2006) conducted a mixed methods study of twenty-seven 8 and 9 year olds who were identified as low achievers in English. Recognizing the increasing need

(specifically in schools but directly applicable to the workplace) for learners to take responsibility for their own learning and to develop management skills that they apply to their learning, this study focused on how to utilize the concepts of multiple intelligences to trigger learning behaviors. Interestingly, Sellar's focus was oriented around Gardner's (1993) views of intra-personal intelligence. While a different approach than much of the other research, it is noted that the seven perceptions of intelligence (linguistic, logical/mathematical, spatial, musical, bodily-kinesthetic, inter-personal, and intra-personal) were situated within the context of social learning, the need for continual learning, and the need for, as Gardner wrote, studies of "…how intelligences are deployed within the workplaces of today and tomorrow" (p. 252). Sellars' focus clearly correlates with the concepts of self-regulated learning. The intervention program was designed to develop self-knowledge and how this self-knowledge could help them develop their English. Sellars utilized the Bloom-Gardner matrix, as outlined by McGrath and Noble (1995) to assist teachers in developing new curriculum that would trigger key self-regulated learning strategies. Also used was the Multiple Intelligences Profiles to assess the individual subjects' skills.

The new curriculum required students to set learning goals, negotiate those goals with the teachers before and during the term, and to journal about their feelings and responses to the work. Sellars' noted significant success (both early and over the term of the study) with 22 of the 27 students who demonstrated stronger preparing and organizational skills. Additionally, coding of the journal entries indicated evidence of their growing skill sets. Unfortunately, the summary of the study results are in prose with very little of the actual statistical findings presented. Because of that, while the

commentary from the researcher is interesting, it is difficult to put much value on the findings.

Eilam, Zeidner, and Aharon (2009) conducted a study to evaluate the relationships between conscientiousness, SRL, and academic achievement. Using a group of 52 eighth graders, and over the course of one academic year, they studied data from the students in the context of an inquiry based ecology project. They utilized the NEO Revised Personality Inventory to measure the broad Five Factor Model Traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) to assess personality. And they used the Learning and Study Strategies Inventory (LASSI) for self-reports on the strategies associated with learning and study habits. Their study was based on four hypotheses:

1. Conscientiousness is significantly associated with student achievement.

2. Conscientiousness is significantly related to self-regulated learning.

3. The use of SRL is significantly related to student achievement and students high in SRL and study skills would have higher grades than students with low SRL.

4. Self-regulated learning mediates the effects of student achievement.

Hypothesis 1 was proven with a significant relationship between conscientiousness and student achievement (both in the specific ecology project as well as GPA across all courses. In addition, agreeableness was found to significantly correlate to the science grade and overall GPA although the effect was reduced when the study was controlled for gender and other factors of the FFM in the multiple regression analysis the researchers completed. The researchers considered that, since the course was unique in

its small group effort and high teacher involvement, it was plausible that students high in

agreeableness responded to the social norms of the environment. Of the five traits, only

these two were found to positively correlate to achievement. Not surprisingly,

neuroticism was found to be negatively correlated.

Hypotheses 2 – 4 were also proven and conscientiousness was, overall, shown to

be significantly related to SRL behaviors and overall achievement.

The researchers noted that the study was limited by the small sample size, the lack

of a control group, and that the unique aspects of the inquiry-based science project may

have provided results that would not be generalizable. Nonetheless, they noted the strong

correlation amongst conscientiousness, SRL strategies and overall performance (both

class and GPA).

Pintrich (2000) conducted a study that evaluated the power of self-efficacy, affect,

goal orientation, task value, self-regulation, self-handicapping, risk taking, test anxiety,

and resultant math grades over a three semester period with 150 junior high students. For

students with learning goal orientation, the study results showed strong positive links

among self-efficacy, time on task, and grades. Students with either performance prove or

performance avoid goal orientation showed an overall drop in adaptive outcomes

(decreases in self-efficacy, task value, use of meta-cognitive strategies and overall

performance) and increases in maladaptive outcomes (decreased time on task or the use

ineffective strategies). As the maladaptive outcomes increased, overall learning

decreased as shown in the grades. While this study was conducted with much younger

data sources than is found in the workplace, it does illuminate the impacted of goal

orientation on learning outcomes.

While much of the research has been conducted on children, there is a growing body of work focused on adults. A study by Pressley and Ghatala (1988) with 51 university undergraduates sought to evaluate differences in studying behaviors and confidence in the behaviors used, based upon the type(s) of questions being asked in a test completed after studying content. Study participants were provided content to study followed by three multiple-choice tests. Upon completion of the tests, participants were asked to review the question and then indicate their level of confidence as to the correctness of their responses.

The results indicated that students were more confident (and more correct) about their answers to questions that were simple and based on facts and less confident (and less correct) about their answers to questions that truly tested their comprehension. The researchers noted that the limitations in the different types of test comprehension items restricts the generalizability of the study results but note that, overall, multiple choice questions appeared to lead study participants to a greater level of confidence about their comprehension than the test results supported. There was also a concern mentioned that the type of questions used focused on verification of facts rather than demonstration of understanding of concepts.

To explore this issue of study regulation and comprehension, Pressley, Ghatala, Woloshyn, and Pirie (1990) conducted a follow up study using another group of undergraduate students. Working with 34 students in the first iteration, the content had both *imprecise* (lacking in certain details) and *precise* (rich in details) sentences. Students were asked to read a section of the content with the expectation that they would be asked either a short answer or a multiple choice question. After answering the

question, they were offered the choice to review the content (if they believed they might not have been correct) or move on to the next section and question.

The results indicated that the more *precise* sentences resulted in more correct short answer and multiple-choice questions when they were focused on fact or detail. Additionally, students who were asked to provide a short answer were more likely to choose to review the material again, before moving forward. When students chose to review the content again, their overall accuracy improved by almost 50%.

In the second study, 48 students read content and then answered a question that focused on the overall passage theme (rather than facts). In this study, regardless of the type of question asked, students demonstrated significant difficulty identifying the themes. Their conclusion was that students were studying for fact (and to be successful on short answer and multiple choice test questions) and were not focused on comprehending the content in a broader sense. Additionally, until the test results were presented to the study participants, they did not indicate an awareness of their comprehension failures.

When discussing the limitations of the studies, the researchers noted that the existence of a limited amount of time for the content review may have caused students to choose the fastest path to completion, rather than learning the content. As the Pressley et al. (1990) study noted, if students do not choose to reread content, in spite of the significant cues to do so, then one can assume that "…readers are even less likely to monitor their comprehension when there are not prompts…" (p. 247).

An interesting study was conducted in Taiwan. Luor, Hu, and Lu (2009) that focused on the gap between intended versus actual use of e-learning programs. This

study was deemed to have some particular relevance for the work undertaken in this study as the study was conducted in a large financial services institution, utilized adult workers, and sought to identify assistances and barriers to use of e-learning programs. Initially, 170 employees participated. As the study progressed, the number was winnowed down to 68. This mixed methods study utilized surveys to evaluate perceptions of the program content (quality), value (relevance) and usability (systems). Additionally, participants were evaluated on their "need for cognition" which is similar in context to the ideas of learning goal versus performance goal orientation.

Overall hypotheses were that need for cognition would be positively correlated to their attitude (initial) about the training, which would be positively correlated to their intention to use the online learning, which would be positively correlated to their actual usage and, finally, that actual usage would be positively correlated to their perceptions of the usefulness of the program, satisfaction with the IT, and overall reaction to the program.

Need for Cognition and Attitude were positively correlated to intent to use but there was no correlation to actual use. As a result of these results, the researchers conducted interviews and identified 10 other items which could potentially impact actual use. The 10 were: motivation, intimidation, enjoyment, time management, expectations of efficiency (program supported other skills), involvement of problem-solving abilities, number of *right courses*, technical problems using the system, incentive, and management support. After analysis, only two of the 10 were found to be significant: time management (effective) was found to be positively correlated with actual use and technical problems were found to be negatively correlated.

The authors noted five possible limitations to their study: (a) the sample was entirely Taiwanese which might make the results culture and business bound; (b) only attitudes and behaviors were studies, not results from the training; (c) the research period may not have been long enough to truly measure the effects; (d) other factors, not identified, might contribute; and (e) the strong, active support of the CEO might significantly

Conclusions

Motivation may be the most critical element needed to initiate learning. Tactics used, and motivation continued, determine the success of the learning. Research reviewed identified many factors that impact whether someone wants to learn and how they go about it. What seems to be most critical in the process, is the initial decision (commitment) to enter a learning situation, the continued motivation (commitment and regulation) to move through the learning, deal with setbacks, evaluate progress along the way, and conclude only when the desired results are achieved, and finally, the specific strategies used to provide deep processing and learning.

This correlational research study was intended to address three issues. The first issue was the question of motivation and whether it was intrinsic or extrinsic. The second issue was what learning strategies people use when studying. The final issue was whether there was a correlation between motivation and the learning strategies used.

Chapter 3: Methods

As outlined earlier, the goals of this study were to conduct an inquiry into employees' self-reported motivation levels and to examine the study tactics they use to learn content deemed critical for job success. Prior research completed by Hadwin et al. (2001) within a university setting, indicated that the participants used varying strategies based on the required outcomes. From those results, the researchers refined the Strategic Learning Questionnaire (SLQ) and are currently using it within the university environment. This study partially replicated their work but within a workplace environment. Because the SLQ does not have specific questions addressing motivation an abbreviated form of the Work Preference Inventory (WPI) was used to assess the motivation of the individuals.

Designed to evaluate whether employees were motivated to complete the required training, the learning strategies used, and whether there was a correlation between motivation and strategies used, there were five research questions identified for this study:

1. Is employee motivation internally regulated (desire to learn, develop new skills)?

2. Is employee motivation externally regulated (perform well compared to peers, earn incentives)?

3. What self-regulated strategies do employees use in studying complex material?

4. Is there a relationship between motivation and learning strategies used?

5. Do *more motivated* employees study differently than *less motivated*

employees?

Design

This correlational study utilized a quantitative research survey method and

abbreviated versions of two existing questionnaires for data collection. The data gathered

from participants provided information to address specific research questions surrounding

motivation (for a required course) and whether there are any correlations between

motivation and the learning strategies employees use. Because certain content is

considered especially critical to job success, understanding how employees study the

material is important.

Setting

The financial services organization surveyed has more than 50,000 employees in

25 states in the United States of America. Employees work in positions ranging from

tellers to consumer and commercial lenders and behind-the-scenes support staff, to name

just a few. Job-specific learning requirements vary significantly by role and include such

issues as systems, financial analysis, and regulations. Training occurs throughout the

year although a significant portion is required at the beginning of each year; much of

which is refresher training on critical regulations.

This specific, required course provides financial analysis training. The online

program takes an average of 50 hours to complete. The program has a pre-test, *check*

your knowledge quizzes throughout, and a final post-test. A passing grade of 75% on

the-post test is required. Employees have three chances to pass the final test. If they do

not pass by the third attempt their manager is contacted to provide additional support to

the employee. While a passing grade is required, conversation with the Human

Resources Department indicated that no employee would be terminated for failing to pass

the course. The explanation for why course failure would not trigger termination was

that the bank would not want to risk litigation. Conversations with the manager of the

group of employees included in this survey indicated there had been people who failed

the program and are no longer with the bank. He stated that program failure was never

the cause of termination as other job inadequacies were always concurrently present. He

added that some subsequently terminated employees had passed the program but were

still unsuccessful in their roles.

Targeted data sample. Sixty-nine employees were offered the opportunity to

participate in this survey. These employees are all involved in the commercial lending

arena and work with business clients ranging from start-ups to customers with

approximately $20 million in revenues. The employees have been assigned this specific

training as a key requirement for their role. The training is rigorous with pre- and post-

tests. The final test for each module must be passed with a minimum score of 75% and

each employee has three attempts to pass the test. After the third attempt, they are locked

out of the system and their manager must become involved to re-instate them.

Employees assigned the content are granted a year to complete the training.

While there are no overt, formal consequences for employees who never finish or

never pass the content, the social pressure and manager supervision are sufficient to

ensure that most people do complete and earn passing grades. That led to the question of

what happened to employees who did not complete the program or did not pass within

the required 12-month period. Conversations with sources in the Human Resources

department of the company indicated that no one would be terminated for failure to complete or pass the program. A number of other reasons for someone no longer being with us were offered including failure to meet performance requirements or a tendency to self-select out.

Sampling process. All employees within the particular commercial lending group covering the small business population and currently assigned to the curriculum were offered an opportunity to participate in the study. They were sent an email (one of three during the 10 business days collection period) inviting them to participate and announcing the four prizes available to survey participants and the details of the prize drawing. A second email was sent halfway through the collection period to remind them of the opportunity. A final email was sent to announce the winner of the prizes.

Data collection strategy. Fink (1995) identified four types of data collection: self-administered questionnaires, interviews, structured record reviews, and structured observations. This study used two self-administered questionnaires. The first is the Work Preference Inventory (Amabile et al., 1994) which (in its full version) has 30 closed-ended questions assessing motivation. For this survey, 10 of those questions (evenly divided between internal and external motivation) were used. The second, the Strategic Learning Questionnaire (Hadwin et al., 2001) has 101 closed-ended questions that address the meta-cognitive activities used in support self-regulated learning. For this survey, 40 of the SLQ items were utilized covering the spectrum of the 12 subscales. The 12 subscales are: Task Understanding, Goal Setting and Planning, Activating Prior Knowledge, Searching/Selecting, Assembling, Translating, Structuring, Rehearsing, Help-Seeking, Monitoring, Evaluating, and Regulating.

A survey structure was used in order to gather information from a group of individuals smaller than the total population. It is believed that the survey approach provided information that could be generalized to the total group of employees within this organization and, possibly, generalized to other workplace organizations.

Description of the online survey and rationale. An online survey was chosen for several reasons. Advantages as identified by Sue and Ritter (2007) are first, that it provides a consistent access point for people who will be participating in the study. Second, it ensures that the presentation of the survey instructions is identical for each person completing the survey. Third, in contrast to a paper-based survey, an online survey makes it easier to ensure participants stick to the response options provided. Fourth, data collection is quick and an immediate data analysis can be performed.

After a number of online survey options (such as SurveyMonkey, Zoomerang, SurveyGizmo, QuestionPro) were reviewed, Zoomerang was chosen because the questionnaire is simply designed and the answer choices do not require a more complex survey structure. Employees being invited to participate in the study were provided the web site address (a URL), instructions for completing the survey (and told the survey will take an estimated 10 minutes to complete), and notified of the random drawings to award prizes after the data collection period is complete. The four prizes were one each of an iPod Shuffle, iPod Nano, iPod Classic, and the third generation iPad.

In order to ensure there were no legal issues or requirements associated with prize giveaways, the researcher worked with both an attorney and a CPA to verify requirements. According to the attorney, no laws exist to prevent the random awarding of prizes to survey participants. The CPA verified that unless the prize amount exceeded

$600, no reporting was required. If the prize value exceeded $600, then a 1099 form must be completed, provided to the winner(s) and a copy filed with the IRS according to the filing requirements. Since the largest prize (the new iPad) cost $545 (including taxes) no reporting was required.

Survey Process

At the beginning of the survey, participants were informed of the purpose of the study, assured of the anonymity of their responses, and the security deployed to ensure the security of the data. While no obvious identifying information such as name or email address was collected, the survey tool was also set up to ensure no IP addresses are retained. As previously mentioned, participation in the survey was entirely optional. Because of the complete anonymity of the survey, it is possible (especially with the randomly drawn prizes which were considered desirable) that someone may have completed the survey more than once. That potential outcome is unavoidable given this structure but considered not too likely to have occurred. Although the presence of the prizes might prompt some individuals to want to enter the drawing more than once, because they were required to provide their names and email addresses, it was considered relatively unlikely that anyone would enter multiple times with any significant frequency. Instructions indicated the survey could only be completed once even though there was no mechanism to enforce that limitation. Within the list of names to be used for the drawing, there were no duplicates.

Hadwin et al. (2001) researched learning strategies (espoused versus in use) deployed by students. Their current questionnaire, an abbreviated form of which is used in this study, is the Strategic Learning Questionnaire (SLQ) and came from the evaluation

and testing of three previous instruments: LASSI (Learning and Study Strategies

Inventory), MSLQ (Motivated Strategies for Learning Questionnaire), and the SPQ

(Study Process Questionnaire).

Developed by Weinstein, Zimmerman, and Palmer (1988) the Learning and Study

Strategies Inventory (LASSI) is a 10-scale, 77-item (Likert structure) assessment of

students' awareness and use of key learning strategies. The items evaluate overt and

covert behaviors used in studying and have been used, specifically, to assist with

identifying difficulties students face when learning and is intended to assist with

intervention design. The 10 scales measure motivation, attitude, anxiety, concentration,

information processing, scheduling, selecting main ideas, self-testing, study aids, and test

strategies.

The Motivated Strategies for Learning Questionnaire (MSLQ) developed by

Pintrich et al. (1993), the second tool utilized was the Motivated Strategies for Learning

Questionnaire (MSLQ). The 81-question MSLQ was created to assess the levels of

motivation and use of learning strategies by college students. Based on a cognitive view

of both motivation and learning strategies, the questionnaire has two sections: the

motivation section includes 31 items designed to evaluate goals and value beliefs about

the course and need for study and the learning strategies section includes 31 questions

focused on the use of meta-cognitive and cognitive strategies and 19 questions focused

on how students manage their resources during studying.

The final questionnaire providing the basis for this tool is the Study Process

Questionnaire (SPQ). Created by Biggs (1986), the SPQ was designed to evaluate how

students approach learning, the specific motives they have, and strategies they use. The

SPQ evaluates surface, deep, and achieving approaches used by students. A surface approach is characterized by the extrinsic motivations students have and the strategies they use for remembering details and reproducing information presented to them. By contrast, a deep approach includes the intrinsic motivation students have and the strategies used for discussing, understanding, and reflecting on the information they received. The achieving approach includes the performance motivation (do well or don't do badly as key reasons to learn) and the strategies deployed in organizing time and effort spent on the learning. The SPQ has been used in educational programs to evaluate approaches primarily in K-12 environments.

From their work and analysis of these tools, Hadwin et al. (2001) developed the initial 76-item Strategic Learning Questionnaire. Subsequent to that work, they refined the survey and now have 101 items with 10 sub-scales. As previously noted, the 10 sub-scales are: *task understanding, goal setting and planning, activating prior knowledge, searching/selecting, assembling, translating, structuring, rehearsing, help-seeking, monitoring, evaluating, and regulating*.

Because the SLQ was written for a college classroom environment, rather than a workplace setting, certain minor edits to the language used were made. As an example, the question "I expect to do well in this class" was re-written to "I expect to do well in this course."

After the survey was completed, participants were advised that if they wanted to enter the survey they were to click on the *Next Survey* button. This then took them to a new site where they entered their name, email address, and phone number. Thirty-three people provided the information for the drawing. The drawing was held the day after the

survey was closed. Each of the 33 names were listed on a piece of paper and placed in a large, opaque bowl. The bowl was then covered and shaken thoroughly. Four names were drawn from the bowl by a person not involved in the study. The first name drawn was awarded the iPod Shuffle. The second was awarded the iPod Nano, the third the iPod Classic and the fourth was awarded the third generations iPad. An email was sent to the original group of invitees notifying everyone who had won. An individual email was sent to each winner asking them to provide ordering details for their prize. All prizes were shipped the same week. Tracking was used to ensure the prizes arrived. Each winner sent an email confirming his or her receipt of the prize.

Validity

As Creswell (2003) wrote, the concept of validity addresses whether "one can draw meaningful and useful inferences from scores" (p. 157). Typically, validity is considered through the three lenses of: content validity (do the questions used measure what they were intended to measure?), predictive validity (do the results correlate with other results?), and construct validity (do the items measure specific concepts?). Recently, studies have also used the concept of construct validity to evaluate whether the scores from the instrument serve a useful purpose.

Reliability

Evaluation of reliability is intended to ensure that the results from administration of the instrument(s) will be dependable-that the same outcome will be achieved each time. Specifically, if an instrument is used in the same way, with the same participants, and under the same conditions, the results should be the same.

Based on survey use since the WPI was first created in 1994, the instrument appears to be both valid and reliable. Consistent scores have been obtained providing the sort of information about motivation in the workplace that was desired when the instrument was envisioned. Cronbach's Alpha was used by the creator (Amabile et al., 1994) to evaluate the reliability of the instrument with the scores ranging from a .62 to a .67 when used with an adult population. The Strategic Learning Questionnaire was created from the well-validated and reliable instruments of the LASSI, MSLQ, and the SPQ. Cronbach's Alpha for this instrument (SLQ) showed a range of 0.64 to 0.87 for the sub-scales of the questions.

The researcher discussed with the two authors (Amabile et al., 1994; Hadwin et al., 2001) the need for shortened survey instruments. Both noted that reduced information would be obtained and that it would have consequences for any conclusions that might result. Breadth (less questions in each subscale category) versus depth (all the questions within a subscale but not all subscales) issues were discussed with the instrument creator which led to the decision that the breadth approach would be the most useful for this initial study. Neither author placed any limitations on the use of the survey instruments they created.

Human Participation Consideration

The study of human behavior has grown dramatically through the years. In decades past, it was common to conduct studies (on animals and humans) with little or no regard for the possible harm or consequences to the study participants (formerly even referred to as subjects). Since realizing unintended harm caused in some studies universities have taken a number of steps to ensure that participants are protected and that

researchers adhere to strong ethical and professional standards. Because it is the responsibility of the researcher to protect participants from harm, Pepperdine University requires all researchers to successfully complete the National Institutes of Health Certificate (see Appendix A). In addition, all research projects must undergo the appropriate levels of review and obtain approval prior to the commencement of the study (see Appendix B).

As this study used an optional, anonymous, online survey with no direct observation or interviews of participants, it is believed that very little participant risk existed. As previously noted, the purpose of the research and the use of the data was explained at the beginning of the invitation and invited employees had full control over their decision to participate. This group is generally considered to be reasonably well-educated with access to a computer and the Internet service necessary to complete the survey. It was requested that a waiver for signed consent be approved because the survey was entirely voluntary and the survey answers were anonymous. Participants who completed the survey were assumed to have given their consent.

Personal data was obtained only for the purpose of the prize drawing, will be kept private and never disclosed. All data collected from the survey questionnaires will be held in strict confidence. All records will be maintained for 10 years in accordance with the policies of Pepperdine University.

Analysis

This was a quantitative study and the appropriate statistical analysis methods for a correlation study were utilized. The use of Zoomerang facilitated the quick and accurate calculation of standard statistical analysis. A variety of descriptive and inferential

statistics were used to evaluate the results. Using the Pearson Product Moment

Correlation (generally called *Pearson's correlation*) the statistical analysis evaluated the

degree to which certain variables were related.

Validating the Findings

A key goal of research is to determine what findings can be generalized to a

broader audience. When research studies are completed using consistent methods and

tools, they support the goals of generalizing the findings. The instruments used should be

both valid and reliable. Because this study built on the work completed by Hadwin et al.

(2001) and Amabile et al. (1994), and the instruments used were derived from well-

validated instruments, it was expected the results would extend the existing research.

Summary

This study was intended to further the body of knowledge of study strategies used

during learning. It focused on employees at a major U.S. financial institution and how

they study material given the context of the learning. The quantitative study evaluated

the motivation and identified the strategies learners used in studying required content

deemed critical for job success. All appropriate protections were in place for participants

(during and after the study) and participation was fully voluntary.

Chapter 4: Data Analysis, Findings, and Observations

This chapter presents the data analyses and findings of the completed study. Five research questions were identified for this study. They are:

1.   Is employee motivation internally regulated (desire to learn, develop new skills)?

2.   Is employee motivation externally regulated (perform well compared to peers, earn incentives)?

3.   What self-regulated strategies do employees use in studying complex material?

4.   Is there a relationship between motivation and learning strategies used?

5.   Do *more motivated* employees study differently than *less motivated* employees?

Forty-four people completed the survey. All of the surveys were usable. Taken from the Work Preference Inventory (Amabile et al., 1994) 10 questions were used to evaluate levels of intrinsic and extrinsic motivation. Data from the measures of motivation (see Table 1) indicated that participants were generally motivated in both intrinsic and extrinsic ways. Overall, intrinsic motivation was stronger than extrinsic.

Intrinsic Enjoyment (IE) measures were stronger than the Intrinsic Challenge (IC) measures although both were stronger than the Extrinsic Outward (EO) or Extrinsic Compensation (EC) measures. This would imply that people engaged in the required training had stronger mastery or performance approach goal orientations than performance avoid goal orientations. As noted in the research previously reviewed, the two goal orientations of mastery (or learning) and performance approach are generally

agreed to lead to the use of better learning strategies such as planning, rehearsing, and regulating as opposed to maladaptive strategies such as task avoidance or help seeking avoidance both of which are common with a performance avoid goal orientation.

Table 1

Summary of Responses to Intrinsic and Extrinsic Motivation Questions (n=44)

(IE) I want my work to provide me with opportunities for increasing my knowledge and skill						
	SD	D	NAD	A	SA	Mean
	0	0	0	14	30	4.68
Percentage of Participants	0%	0%	0%	32%	68%	

(IE) Curiosity is the driving force behind much of what I do						
	SD	D	NAD	A	SA	Mean
	0	2	5	19	18	4.20
Percentage of Participants	0%	5%	11%	43%	41%	

(IC) The more difficult the problem, the more I enjoy trying to solve it						
	SD	D	NAD	A	SA	Mean
	0	4	2	24	14	4.66
Percentage of Participants	0%	9%	5%	55%	32%	

(ICR) I prefer work I know I can do well over work that stretches my abilities						
	SD	D	NAD	A	SA	Mean
	3	17	13	8	3	2.80
Percentage of Participants	7%	39%	30%	18%	7%	

(EO) To me, success means doing better than other people						
	SD	D	NAD	A	SA	Mean
	2	8	3	26	5	3.55
Percentage of Participants	5%	18%	7%	59%	11%	

(continued)

(EO) I am motivated by the recognition I earn from other people

	SD	D	NAD	A	SA	Mean
	1	2	8	23	10	3.89
Percentage of Participants	2%	5%	18%	52%	23%	

Note. SD = Strongly Disagree, D = Disagree, NAD = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree, IE = Intrinsic Enjoyment, IC = Intrinsic Challenge, EO = Extrinsic Outward, EC = Extrinsic Compensation, ICR = Intrinsic Challenge (Reversed Score)

Using an abbreviated, Strategic Learning Questionnaire (Hadwin et al., 2001), 40 questions were utilized to evaluate the learning strategies used by participants when studying the complex material. The subscales from the SLQ address: Task Understanding (TU), Goal Setting and Planning (GS), Activating Prior Knowledge (AK), Searching/Selecting (SS), Assembling (AS), Translating (TR), Structuring (ST), Rehearsing (RE), Help-Seeking (HS), Monitoring (MO), Evaluating (EV) and Regulating (RG).

The survey was divided into three sections for participants to think about their study practice: before studying began, during the study period, and after studying. As shown in Table 2, for the section devoted to what employees did prior to beginning their study, participants reported an average of 3.92 for Task Understanding, 3.96 for Goal Setting and 4.28 for Activating Prior Knowledge. Based upon the scores, participants do use study tactics such as Task Understanding, Goal Setting, and Activating Prior Knowledge.

Table 2

Task Understanding (TU), Goal Setting (GS), and Activating Prior Knowledge (AK)

Subscales (n=44)

Before I Started Studying, I …

(TU) Identified what I need to learn	SD	D	NAD	A	SA	Mean
	1	2	5	34	2	3.77
Percentage of Participants	2%	5%	11%	77%	5%	

(TU) Figured out why studying this is important in this course or discipline

	SD	D	NAD	A	SA	Mean
	0	2	6	30	6	3.91
Percentage of Participants	0%	5%	14%	68%	14%	

(TU) Figured out what documents/resources I should use for my studying (files, notes, and readings)

	SD	D	NAD	A	SA	Mean
	0	1	1	36	6	4.07
Percentage of Participants	0%	2%	2%	82%	14%	

(GS) Set goals for my work

	SD	D	NAD	A	SA	Mean
	0	1	3	24	16	4.25
Percentage of Participants	0%	2%	7%	55%	36%	

(GS) Set goals that identify specific concepts, ideas, or terms I need to know

	SD	D	NAD	A	SA	Mean
	0	4	9	22	9	3.82
Percentage of Participants	0%	9%	20%	50%	20%	

(GS) Set goals that focused on learning, understanding and remembering

	SD	D	NAD	A	SA	Mean
	0	4	9	22	9	3.82
Percentage of Participants	0%	9%	20%	40%	20%	

(AK) Tried to remember strategies or techniques I have used to complete similar tasks

	SD	D	NAD	A	SA	Mean
	0	2	2	18	22	4.36
Percentage of Participants	0%	5%	5%	41%	50%	

(AK) Figured out what I already knew about this topic

	SD	D	NAD	A	SA	Mean
	0	2	3	23	16	4.20
Percentage of Participants	0%	5%	7%	52%	36%	

Note. SD = Strongly Disagree, D = Disagree, NAD = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree.

The second section of the questions on learning strategies used focused on how participants studied. Key measures addressed Searching/Selecting (SS), Assembling (AS), Translating (TR), Structuring (ST), Rehearsing (RE), and Help-Seeking (HS). As shown in Table 3, the average scores were: Searching/Selecting 4.06, Assembling 4.02, Translating 3.40, Structuring 3.57, Rehearsing 3.67, and Help-Seeking 3.33.

Table 3

Searching/Selecting (SS), Assembling (AS), Translating (TR), Structuring (ST),

Rehearsing (RE), and Help-Seeking (HS) Subscales (n = 44)

During My Studying, I ...

	SD	D	NAD	A	SA	Mean
(SS) Highlighted important information	0	2	1	25	16	4.25
Percentage of Participants	0%	5%	2%	57%	36%	
(SS) Identified key terms or concepts	SD	D	NAD	A	SA	Mean
	0	1	2	22	19	4.34
Percentage of Participants	0%	2%	5%	50%	43%	

(continued)

(SS) Classified information by what I know and what I don't know

	SD	D	NAD	A	SA	Mean
	0	9	9	18	8	3.57
Percentage of Participants	0%	20%	20%	41%	18%	

(SS) Labeled or highlighted things I had questions about or wanted to discuss

	SD	D	NAD	A	SA	Mean
	0	3	5	18	18	4.16
Percentage of Participants	0%	7%	11%	41%	41%	

(SS) Labeled or highlighted things I wanted to review again later

	SD	D	NAD	A	SA	Mean
	0	3	4	23	14	4.09
Percentage of Participants	0%	7%	9%	52%	32%	

(SS) Labeled or highlighted things that were difficult

	SD	D	NAD	A	SA	Mean
	0	4	7	20	13	3.95
Percentage of Participants	0%	9%	16%	45%	30%	

(AS) Made connections (links) between readings

	SD	D	NAD	A	SA	Mean
	0	3	9	20	12	3.93
Percentage of Participants	0%	7%	20%	45%	27%	

(AS) Made connections (links) between this work and other work in this course

	SD	D	NAD	A	SA	Mean
	0	1	9	18	16	4.11
Percentage of Participants	0%	2%	20%	41%	36%	

(TR) Made up questions for myself to answer

	SD	D	NAD	A	SA	Mean
	6	14	6	15	3	2.89
Percentage of Participants	14%	32%	14%	34%	7%	

(continued)

TR) Created examples for terms and principles

	SD	D	NAD	A	SA	Mean
	3	11	10	15	5	3.18
Percentage of Participants	7%	25%	23%	34%	11%	

(TR) Made notes in my own words	SD	D	NAD	A	SA	Mean
	0	2	4	15	23	4.34
Percentage of Participants	0%	5%	9%	34%	52%	

(TR) Made up questions targeting key information

	SD	D	NAD	A	SA		Mean
	2	16	12	12	2		2.91
Percentage of Participants	5%	36%	27%	27%	2%		

(TR) Answered the questions I had created about key information

	SD	D	NAD	A	SA	Mean
	2	11	17	14	0	2.98
Percentage of Participants	5%	25%	39%	32%	0%	

(TR) Talked through (either out loud or silently) key concepts

	SD	D	NAD	A	SA	Mean
	0	3	3	24	14	4.11
Percentage of Participants	0%	7%	7%	55%	32%	

(ST) Organized problems or questions by concepts

	SD	D	NAD	A	SA	Mean
	1	6	10	18	9	3.64
Percentage of Participants	2%	14%	23%	41%	20%	

(ST) Organized problems or questions by concepts

	SD	D	NAD	A	SA	Mean
	1	10	7	18	8	3.50
Percentage of Participants	2%	23%	16%	41%	18%	

(RE) Taught someone else the material

	SD	D	NAD	A	SA	Mean
	4	8	5	20	7	3.41
Percentage of Participants	9%	18%	11%	45%	16%	

(RE) Answered practice test questions

	SD	D	NAD	A	SA	Mean
	0	1	1	21	21	4.41
Percentage of Participants	0%	2%	2%	48%	48%	

(RE) Took turns with a peer asking each other questions about the material

	SD	D	NAD	A	SA	Mean
	4	14	4	13	9	3.20
Percentage of Participants	9%	32%	9%	30%	20%	

(HS Asked someone else to explain the information to me

	SD	D	NAD	A	SA	Mean
	4	12	3	19	6	3.25
Percentage of Participants	9%	27%	7%	43%	14%	

(HS) Asked someone for help

	SD	D	NAD	A	SA	Mean
	3	12	2	18	9	3.41
Percentage of Participants	7%	27%	5%	41%	20%	

Note. SD = Strongly Disagree, D = Disagree, NAD = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree.

The final section evaluated what participants did after studying. The subscales focused on Monitoring (MO), Evaluating (EV), and Regulating (RG). Table 4 shows the mean scores for these three subscales were: Monitoring at 3.72, Evaluating at 4.11, and Regulating at 3.38.

Table 4

Monitoring (MO), Evaluating (EV), and Regulating (RG) Subscales (n = 44)

After I Studied, I ....

	SD	D	NAD	A	SA	Mean
(MO) Asked myself if I knew what was important	1	3	7	28	5	3.75
Percentage of Participants	2%	67%	16%	64%	11%	

(MO) Asked myself if I was understanding what I needed to know

	SD	D	NAD	A	SA	Mean
	0	2	7	29	6	3.89
Percentage of Participants	0%	5%	16%	66%	14%	

(MO) Checked to see if the goals I set for my studying were appropriate for the kind of test/exam I would

be having

	SD	D	NAD	A	SA	Mean
	1	8	5	27	3	3.52
Percentage of Participants	2%	18%	11%	61%	7%	

(EV) Appraised my current understanding of the material

	SD	D	NAD	A	SA	Mean
	0	2	8	24	10	3.95
Percentage of Participants	0%	5%	18%	55%	23%	

(EV) Realized that I didn't know something or hadn't read something

	SD	D	NAD	A	SA	Mean
	0	3	3	20	18	4.20
Percentage of Participants	0%	7%	7%	45%	41%	

(continued)

(EV) Realized that I wasn't understanding something

	SD	D	NAD	A	SA	Mean
	0	4	6	20	14	4.00
Percentage of Participants	0%	9%	14%	45%	32%	

(EV) Made a judgment about the usefulness or value of something I was studying

	SD	D	NAD	A	SA	Mean
	0	0	4	24	16	4.27
Percentage of Participants	0%	0%	9%	55%	36%	

(RG) Changed my studying goal (what I was aiming for)

	SD	D	NAD	A	SA	Mean
	1	10	16	12	5	3.23
Percentage of Participants	0%	23%	36%	27%	11%	

(RG) Changed my plans for how to study

	SD	D	NAD	A	SA	Mean
	3	20	11	15	5	3.66
Percentage of Participants	7%	23%	25%	34%	11%	

(RG) Switched to a different strategy or studying process

	SD	D	NAD	A	SA	Mean
	3	12	12	12	5	3.09
Percentage of Participants	7%	27%	27%	27%	11%	

(RG) Changed the level of effort I was engaging in the work

	SD	D	NAD	A	SA	Mean
	0	11	7	18	8	3.52
Percentage of Participants	0%	25%	16%	41%	18%	

Note. Strongly Disagree, D = Disagree, NAD = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree.

Because this was a correlation study, Pearson's correlation analysis was chosen as the appropriate indicator of the direction and strength of the relationship as the measures (motivation and learning strategies variables) were interval measures (see Table 5). There were significant correlations found between four variables: Intrinsic Challenge was significantly associated with a greater use of both Goal Setting (a moderate correlation) and Activating Prior Knowledge (a moderate correlation), and Extrinsic Outward motivation was significantly associated with a greater use of both Goal Setting (a low correlation) and Regulating (a moderate correlation). None of the other correction coefficients were statistically significant.

Table 5

Correlation of Motivation and Learning Strategy (n =44)

	Motivation			
Learning Strategy	IE	IC	EO	EC
Task Understanding	.013	.269	.120	.158
Goal Setting	.005	.351 *	.297 *	.001
Prior Knowledge	.238	.372 *	.063	.078
Search and Select	.202	.174	.155	.015
Assembling	.128	.177	.134	.112
Translating	.031	.217	.219	.026
Structuring	.118	.098	.284	.115
Rehearsing	.201	.196	.078	.050
Help Seeking	.103	.088	.063	.024
Monitoring	122	.126	-.049	-.035

(continued)

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	Motivation			
Learning Strategy	IE	IC	EO	EC

_____

Learning Strategy	IE	IC	EO	EC
Evaluating	.131	.099	-.102	.185
Regulating	.250	.233	.321*	.067

_____

Note. * p < .05, ** p < .01, *** p < .001; IE = Intrinsic Enjoyment, IC = Intrinsic Challenge, EO = Extrinsic Outward, EC = Extrinsic Compensation.

Different authors have offered a variety of guidelines for how coefficient correlations should be interpreted. A high number (such as 0.9 or -0.9) might actually be considered low if one was conducting experiments using highly accurate instruments within a controlled laboratory setting. By contrast, within the social sciences, where there are so many competing human factors which could impact the results, a lower standard for a correlation is generally used. As Cohen (1988) noted, within the social sciences, a strong correlation is generally considered to have been found if the positive correlation coefficient fell between 0.5 to 1.0 or -0.5 to -1.0 if a negative correlation. A medium positive correlation would be represented by 0.3 to 0.5 or -0.3 to -0.5 for a negative correlation. A small correlation would be represented by 0.1 to 0.3 (-0.1 to -0.3 if a negative correlation). No correlation is deemed to exist if the coefficient is 0.0 to 0.9 (or 0.0 to -0.9 is a negative correlation). Based on that standard, a medium strength correlation was found for three of the four and a small correlation was found on the fourth.

While Pearson's coefficient indicates the strength and direction of the relationship, it does not show the proportion of the variation in one variable that is

attributable to the other. In order to consider the proportion, the coefficient of determination was utilized. By squaring the correlation coefficient (the calculation for the coefficient of determination) one can see what percentage of the variable can be directly attributed to the other. Within the Intrinsic Motivation scales, 12% of the variation in Goal Setting and 14% of the variation in Activating Prior Knowledge can be attributed to the Challenge subscale and vice versa. Considering the Extrinsic Motivation scales, nine % of the variation in Goal Setting and 10% of the variation in Regulating can be attributed to the Outward subscale and vice versa.

Summary

Overall, the results indicate that people were motivated to learn the content and that they used meta-cognitively desirable appropriate learning strategies during the process; however, only limited correlations were found between motivation and specific learning strategies. Possible reasons for this lack of connection between motivation and learning strategies will be reviewed in the next chapter.

Chapter 5: Conclusions and Recommendations

In this final chapter, the researcher offers conclusions about how the data support or do not support the research questions. There is a variety of limitations associated with this study which were outlined in Chapter 1. Finally, the researcher will offer recommendations for further research in the critical field of employee learning.

Conclusions

From the data gathered, it is clear that people were motivated to complete this learning. Above average scores for both Intrinsic and Extrinsic motivation were reported and the Learning Strategies used were also reported at above average levels.

It had been anticipated that motivation would directly link to the learning strategies used. But, as noted in the previous chapter, the results generally did not show large correlations of motivation and learning strategies. There were two significant correlations within the Intrinsic Motivation (Challenge): Goal Setting and Activating Prior Knowledge. From that, the researcher concludes that people who like being challenged to learn something new set specific goals for their learning and look to build upon what they already know.

People who are Externally Motivated by the outward elements of recognition, having clear goals established, and doing better than others had significant correlations to Goal Setting and Regulating. The conclusions from this would be that those who are externally motivated by the visibility of their success look to have clear goals and make adjustments throughout the learning process to ensure they achieve those goals.

While limited, this research provides insight into how employees studied or plan to study required content. Motivation did have some impact on the learning strategies

deployed by participants although not to a level of correlation that had been hypothesized. Extending this study to a broader group within the financial services industry would provide more insight into employees and their learning habits. Additionally, if both instruments (the WPI and the SLQ) could be used in their entirety, correlations might be found that were not found in this study. Even better would be a longitudinal study tracking motivation, learning strategies used (when engaged in required, complex training), performance on the required final exam, and actual performance would lead to the best understanding of employee learning.

Recommendations

As outlined at the beginning of this study, the future for companies and employees will depend on continual learning. Annual spending on training programs exceeds $134 billion (ASTD, 2010); however, people within organizations generally agree that training seldom provides the desired results. Unsuccessful training leads to dissatisfied organizations, customers, and employees. Whether considering K-12 education, higher education, or corporate learning organizations, educational efforts are generally considered ineffective.

Understanding the motivational levels of employees and how they study could help organizations identify the key motivating factors (unique to each individual) and position learning opportunities toward those motivators. Unfortunately, most organizations typically utilize either the carrot (an incentive check) or the stick (being fired) approach to getting people to learn new skills. While that extrinsic motivation (extrinsic outward or extrinsic compensation) approach will motivate some people, it does not provide the motivational encouragement for much of the population. As this

study identified, there are strong intrinsic motivators (challenge and enjoyment) in play for most employees. Organizations which position learning opportunities in ways that engage the four types of motivation identified here could see stronger learning and performance results.

Additionally, understanding if employees use key meta-cognitive learning strategies, and which ones they use, could enable learning teams to modify how they train. Training modules could be modified to include reminders of key learning strategies they should use, the specific steps involved in each strategy, and modeling of successful use of the strategies.

It is recommended that additional studies are conducted by researchers in a variety of ways. First, researchers should continue to conduct studies of the adult population within a workplace environment. As noted early in this study, insufficient research is conducted on the adult population and given the sweeping changes facing us as a country and a population, it is imperative that we study how (and why) employees learn new material so that we can use that information to manage our communications, training content, and manager involvement. It would also be useful to look at the demographic factors (such as gender, age, level of school completed and others) to see if there are correlations there.

Second, as previously noted, because abbreviated versions of the two survey instruments were used, researchers should look for opportunities to use the two survey instruments in their entirety to determine if greater (or different) correlations were identified.

Third, as organizations are driven for results, researchers should look to extend the study to include performance on any final exams as well as a longitudinal study to determine if correlations exist among motivation, learning strategies used, performance on a final exam, and actual performance on the job.

There is a multitude of factors that impact job performance. Early in this study, the researcher noted the *stew* that makes up the motivation for each individual. In reality, the actual *stew* is job performance. While many ingredients may be identified (initial knowledge, motivation, learning strategies, to name a few), the entire range of ingredients, and the impact of each on each employee, is a challenging problem. Nonetheless, given the organizational needs for continual improvement in employee skill sets, it is critical that research in these areas is expanded. The National Center on Education and the Economy (2007) could not have stated it more clearly when it stated:

> The reason – and the only reason – that the rest of the world would be willing to pay us twice as much as equally competent people is if we can add creativity and innovation on a grand scale to sheer competence…. (p. 24)

Without a focus on ways we can improve the skills of our employees, the products and services our companies make, and the value we bring to the rest of the world, the future for the United States of America is one of declining productivity and wealth. That is not an acceptable future.

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APPENDIX A

National Institutes of Health Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Cynthia Parmenter successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion:
06/25/2008

Certification Number: 52973

APPENDIX B

IRB Approval

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

March 6, 2012

Cynthia Lee Parmenter

Protocol #: E0212D18
Project Title: *Motivation and Learning Strategies: A Correlational Study of Employee Training*

Dear Ms. Parmenter:

Thank you for submitting your application, *Motivation and Learning Strategies: Elixirs of Workplace Learning,* for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Monica Goodale, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(2) states:

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

Category (2) of 45 CFR 46.101, research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

In addition, your application to waive documentation of consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been **approved**.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under

exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our
best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at http://www.pepperdine.edu/irb/graduate/).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

Jean Kang, CIP
Manager, GPS IRB & Dissertation Support
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cc: Dr. Lee Kats, Associate Provost for Research & Assistant Dean of Research, Seaver College
Ms. Alexandra Roosa, Director Research and Sponsored Programs
Dr. Yuying Tsong, Interim Chair, Graduate and Professional Schools IRB Ms. Jean Kang, Manager, Graduate and Professional Schools IRB
Dr. Monica Goodale
Ms. Christie Dailo